JAGXTREME™

Industrial Terminal

Technical Manual

15896200A
9/00.01

This manual describes the operation and functionality of the JAGXTREME terminal. The software number is displayed during the power-up sequence.

CUSTOMER FEEDBACK

If you have a problem with this product, or just a suggestion on how we can serve you better, please fill out this form and send it to us. Your feedback will help us to improve product performance, quality and service. Mail to the address on the reverse, or fax to (614) 438-4355.

Your Name:	Date:
Organization Name:	Mettler Toledo Order Number
Address:	Part / Product Name:
	Part / Model Number:
	Serial Number:
Phone Number: ( ) Fax Number: ( )	Company Name of Installation:
E-mail Address:	Contact Name:
	Phone Number:

How well did this product meet your expectations in its intended use?		Comments:
	Met and exceeded my needs	
	Met all needs	
	Met most needs	
	Met some needs	
	Did not meet my needs	

PROBLEM:

UNACCEPTABLE DELIVERY:

- ☐ Shipped late
- ☐ Shipped early
- ☐ Shipped to incorrect location
- ☐ Other (Please Specify)

OUT OF BOX ERROR:

- ☐ Wrong item
- ☐ Wrong part
- ☐ Missing equipment
- ☐ Equipment failure

- ☐ Wrong documentation
- ☐ Missing documentation
- ☐ Incorrectly calibrated
- ☐ Other (Please specify)

Comments:

DO NOT WRITE IN SPACE BELOW; FOR METTLER TOLEDO USE ONLY

☐ Retail ☐ Light Industrial ☐ Heavy Industrial ☐ Systems

RESPONSE: Include Root Cause Analysis and Corrective Action Taken.

FOLD THIS FLAP FIRST

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UNITED STATES

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Mettler-Toledo, Inc.
Quality Manager - MTWI
1150 Dearborn Drive
Worthington, OH 43085
USA

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DECLARATION OF CONFORMITY
Konformitätserklärung
Déclaration de conformité
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We/Wir/Nous/Wij/Noi: **Mettler-Toledo, Inc.**
1150 Dearborn Drive
Worthington, Ohio 43085
USA

declare under our sole responsibility that the product,
erklären, in alleiniger Verantwortung, daß dieses Produkt,
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Model/Type: **Jaguar and JagXtreme**

to which this declaration relates is in conformity with the following standard(s) or other normative document(s).
auf das sich diese Erklärung bezieht, mitder/den folgenden Norm(en) oder Richtlinie(n) übereinstimmt.
Auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou au(x) document(s) normatif(s).
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in combination with a weighing platform produced by Mettler-Toledo is in conformity with the following directives and standards.

Council directive on the harmonization of the laws of the Member states:	**standards:**
relating to non-automatic weighing instruments (90/384/EEC) amended by directive (93/68/EEC)	EN 45501
relating to electromagnetic compatibility (89/336/EEC) amended by directive (93/68/EEC; 92/31/EEC)	EN 55022-1
relating to electrical equipment designed for use within certain voltage limits (73/23/EEC amended by directive (93/68/EEC)	EN 60950

Worthington, Ohio USA, May, 2000 Mettler-Toledo, Inc.

Darrell Flocken, Manager - Weights & Measures
Office of Weights and Measures

Original issue:	**July, 1995**	
Revised:	**October, 1996**	**added compliance to Low Voltage Directive**
	May, 2000	**added JagXtreme**

INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

METTLER TOLEDO
1900 Polaris Parkway
Columbus, Ohio USA 43240
Phone (US and Canada): 614-438-4511
Phone (International): 614-438-4888

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

ORDERING INFORMATION

It is most important that the correct part number is used when ordering parts. Parts orders are machine processed, using only the part number and quantity as shown on the order. Orders are not edited to determine if the part number and description agree.

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PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

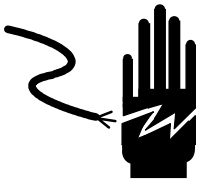
FOLLOW these instructions carefully.

SAVE this manual for future reference.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.

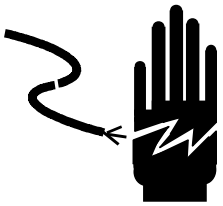


⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

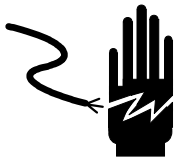
⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



⚠ WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.



⚠ WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD, CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.

CONTENTS

1 Introduction

Model Identification

The JAGXTREME Internet-enabled scale terminal is designed to help companies provide cost-effective, flexible methods of production while maximizing engineering time and effort. It offers connectivity to all METTLER TOLEDO technologies, as well as open connectivity to the leading industry technologies, to facilitate communication and data exchange with companies' control, manufacturing execution, and enterprise systems.

The JAGXTREME terminal is available with various operator interfaces and enclosure types. Please refer to the following Factory Number Reference chart to identify the JAGXTREME terminal with which you will be working. A detailed description of each designation is given to help you determine the specifications for each model. A brief description of the optional accessories appears on the next page.

If you are upgrading an existing METTLER TOLEDO JAGUAR terminal to a new JAGXTREME terminal, refer to the instructions provided with your upgrade kit.

For users of the JAGXTREME terminal's predecessor, METTLER TOLEDO's JAGUAR terminal, please pay special attention to the programming and calibration section. Programming and calibration of the JAGXTREME terminal can be performed via the embedded web server as well as through the front panel of the unit.

FACTORY NUMBER REFERENCE CHART

JAGXTREME TERMINAL MODEL CONFIGURATION

Example: JXPB-1600-000

JX	XX	X	X	X	X	XXX
Terminal	**Enclosure Display**	**Slot #1 Accessory**	**Slot #2 Accessory**	**Slot #3 Accessory**	**Application Software**	**Destination Market**
JAGXTREME Terminal	PB=Panel, Blind PA=Panel, A/N GA=General Purpose A/N HA=Harsh, A/N	0=Cover Plate 1=Analog Scale 2=R E* Analog Scale 3=POWERCELL 4=MMR Base 7=Multifunction I/O A=Dual Analog Scale B=Dual R E* Analog Scale	0=Cover Plate 1=Analog Scale 2= R E*Analog Scale 3=POWERCELL 4=MMR Base 7=Multifunction I/O A=Dual Analog Scale B=Dual R E Analog Scale	0=Cover Plate 5=Modbus Plus 6=Allen Bradley RIO 7=Multi-function I/O 8=Dual Channel Analog Output 9=PROFIBUS DP	0=Standard JagBASIC (included)	000=USA See the Market Codes in the Appendix for additional destination codes

* RE – Reduced Excitation. JAGXTREME terminals with harsh environment enclosures are not approved for use in hazardous areas.

Accessories

A number of accessories are available for the JAGXTREME terminal. Please contact your authorized METTLER TOLEDO representative for more detailed information.

Cover Plate (0)

This thin metal plate is used to cover the opening in the back of the regular or blind chassis panel-mount JAGXTREME terminal if an optional PCB is not installed at this location.

Analog Scale (1)

This option is required when interfacing analog type load cells. A 15-volt excitation voltage is used to power up to 16 350-ohm load cells from one Analog PCB. A jumper is provided to select operation with 2 mV/V or 3 mV/V load cells. The JAGXTREME terminal will operate with load cells of impedances other than 350 ohms or other mV/V specifications, but the total scale resistance must not be less than 22 ohms. A quiet analog signal section, combined with a proprietary analog-to-digital converter and coprocessor implementing METTLER TOLEDO proprietary TraxDSP® filters, provides weighing and vibration rejection performance unequaled in the industry.

The zero temperature coefficient is 0.15 µV/degree C. The span temperature coefficient is 6 ppm/degree C. When using the analog scale option, the display update rate is limited to 10 updates per second. The actual A/D conversion rate exceeds 300 cycles per second. This high-speed process allows the JAGXTREME terminal to filter out noise while providing a weight update rate of up to 50 updates per second for setpoint control and other scale functions.

Each analog scale option board has a removable EEPROM that stores calibration parameters for the scale. If an EEPROM is transferred to another board, all calibration parameters transfer. A detachable seven-position terminal strip is used to terminate the analog load cell cable on the rear of the PCB. Signal, excitation, sense, and shield connections are provided with easy-to-read descriptions. Two LEDs are visible through holes in the rear panel of the PCB to indicate the status of the Analog PCB.

Reduced Excitation Analog Scale (2)

This option, when used with a protective load cell barrier, allows operation of the JAGXTREME terminal with analog load cells located in an area classified as hazardous by the National Electrical Code. The excitation voltage is lowered to 5 volts for this option. A METTLER TOLEDO Reduced Excitation module is required for these applications. The standard JAGXTREME terminal cannot be located inside the hazardous area. Purged enclosures are available from METTLER TOLEDO.

The zero temperature coefficient is 0.15 µV/degree C. The span temperature coefficient is 6 ppm/degree C. When using the analog scale option, the display update rate is limited to 10 updates per second. The actual A/D conversion rate exceeds 300 cycles per second. This high-speed process allows the JAGXTREME terminal to filter out noise while providing a weight update rate of up to 50 updates per second for setpoint control and other scale functions.

Each analog scale option board has a removable EEPROM that stores calibration parameters for the scale. If an EEPROM is transferred to another board, all calibration parameters transfer as well. A detachable seven-position terminal strip is used to terminate the analog load cell cable on the rear of the PCB. Signal, excitation, sense, and shield connections are provided, each with an easy-to-read description. Two LEDs are visible through holes in the rear panel of the PCB to indicate its operating status.

POWERCELL (3)

The POWERCELL interface must be used when the JAGXTREME terminal is used with a METTLER TOLEDO load cell. The POWERCELL I/O option supports up to 24 cells (an external power supply is needed for scales with more than 14 cells). The POWERCELL I/O PCB can be used with the METTLER TOLEDO Hazardous Area Barrier Box. Please contact your METTLER TOLEDO representative for more information about applications in hazardous environments.

MMR (IDNET) (4)

The IDNET Interface Module allows you to interface a METTLER TOLEDO Multi-Range base or lab balance with IDNET option with the JAGXTREME terminal. When utilizing this interface, the JAGXTREME terminal acts as a "front end" for the base. Setup and calibration of the base is identical to the procedure used by the ID family of indicators. Scale related information is stored in the scale base as well as the JAGXTREME terminal, allowing its access by external devices such as a PLC.

Modbus Plus (5)

The Modbus Plus interface enables the terminal to directly interface with Modbus Plus devices such as PLCs manufactured by MODICON. The JAGXTREME terminal interface acts as a single Modbus Plus node, which can support up to four scales, and has been fully certified by the Modicon Test Center.

Allen-Bradley RIO (6)

This option allows the JAGXTREME terminal to exchange data with an Allen-Bradley PLC like a remote 1771 module on the Allen-Bradley remote I/O. A direct connection to an Allen-Bradley controller is possible via this "blue hose" connection. If the terminal has two or more scales installed, all share the same RIO option board. If multiple terminals are combined in a "cluster" using Ethernet, up to four scales can share the RIO option. Each scale requires one-quarter rack of RIO address space. JAGXTREME terminals support quarter rack addressing.

JAGXTREME terminals support discrete and block transfer modes of data interface. Both are bi-directional. Discrete mode is used for data, status, and command exchange. Block transfer allows more extensive data exchange and allows the PLC to write messages to the terminal's lower alphanumeric display. Connection to the RIO option is made via a detachable three-position terminal strip on the rear of the RIO option.

Multifunction I/O (7)

The Multifunction PCB option expands the number of serial and discrete input and output ports supported by the JAGXTREME terminal. The Multifunction PCB adds two serial ports. COM3 can be used for RS-232 communications. COM4 can be used for RS-232 or RS-422/RS-485 communications. COM4 can be used for a single DigiTOL or UltraRes understructure interface. The Multifunction PCB adds eight programmable discrete inputs (PAR 3). Eight programmable discrete outputs (PAR 4). PAR 3 and PAR 4 assignments are user-configurable.

Dual Channel Analog Output (8)

The Analog Output Module provides two channels of analog output, one for each of up to two scales connected to the terminal. The channels may be selected to provide either a 0 to 10 V or a 4 to 20 mA analog output signal. The output is the result of a 16-bit digital to analog conversion.

PROFIBUS Interface (9)

The JAGXTREME terminal with the PROFIBUS Interface Module is a fully L2-DP compliant device which can be used with a wide range of PROFIBUS compatible devices. This module provides the process control engineer with the ability to access weight information, status of the scale, and to download a setpoint or tare weight. The Profibus option has been fully certified by the Siemens Profibus Test Center.

Dual Analog Scale (A)

An analog scale option is required when interfacing analog type load cells. A 15-volt excitation voltage is used to power up to 16 350-ohm load cells from one analog channel. The dual channel card can support a maximum of 20 load cells. A jumper is provided to select operation with either 2mV/V or 3mV/V load cells. The JAGXTREME terminal will operate with load cells of impedances other than 350 ohms or other mV/V specifications, but the total scale resistance must not be less than 22 ohms.

A quiet analog signal section, combined with a proprietary analog-to-digital converter and co-processor that use METTLER TOLEDO's proprietary TraxDSP filters, provides weighing and vibration rejection performance unequaled in the industry. The zero temperature coefficient is 0.15 uV/degree C. The span temperature coefficient is 6 ppm/degree C.

When using the analog scale option, the display update rate is limited to 10 updates per second. The actual A/D conversion rate exceeds 300 cycles per second. The high-speed process allows the terminal to filter out noise while providing a weight update rate up to 50 updates per second for setpoint control and other functions.

The dual channel analog scale option board has a removable EEPROM for each scale channel that stores calibration parameters for that scale channel. If an EEPROM is transferred to another board, all calibration parameters transfer as well.

A detachable seven-position terminal strip is used to terminate each analog load cell cable on the rear of the PCB. Signal, excitation, sense, and shield connections are provided with easy-to-read descriptions. Two LEDs are visible through holes in the rear panel of the PCB to indicate the status of the Analog PCB. The JAGXTREME terminal supports up to two dual analog scale cards.

Reduced Excitation Dual Analog Scale (B)

The analog scale option is used with a protective load cell barrier to permit operation of the JAGXTREME terminal with analog load cells located in an area classified as hazardous by the National Electrical Code. The excitation voltage is lowered to 5 volts for this option. A METTLER TOLEDO Reduced Excitation module is required for these applications. The standard JAGXTREME terminal cannot be located inside the hazardous area as is. Purged enclosures are available from METTLER TOLEDO if the terminal must be located inside the hazardous area. Note: The Reduced Excitation module can only support up to 12 analog load cells or a total resistance of 58 ohms.

Jumpers are provided to select operation with 2mV/V or 3mV/V load cells. The terminal will operate with load cells of impedances other than 350 ohms or other mV/V specifications, but the total scale resistance must not be less than 22 ohms.

The zero temperature coefficient is 0.15 uV/degree C. The span temperature coefficient is 6 ppm/degree C. When using the analog scale option, the display update rate is limited to 10 updates per second. The actual A/D conversion rate exceeds 300 cycles per second. The high-speed process allows the JAGXTREME terminal to filter out noise and still provide a weight update rate up to 50 updates per second for setpoint control and other scale functions.

The dual channel analog scale option board has a removable EEPROM for each scale channel that stores calibration parameters for that scale channel. If an EEPROM is transferred to another board, all calibration parameters transfer as well.

A detachable seven-position terminal strip is used to terminate each analog load cell cable on the rear of this PCB. Signal, excitation, sense, and shield connections are provided, each with an easy-to-read description. Two LEDs are visible through holes in the rear panel of this PCB to indicate the status of the Analog PCB. The JAGXTREME terminal will support one or two Reduced Excitation dual analog scale cards in its chassis.

Specifications

Model	General Purpose	Panel Mount	Panel Mount – Blind Chassis	Harsh Environment
Dimensions	12.45 in (25 cm) wide x 7.86 in (20 cm) high x 10.6 in (27 cm) deep	10.05 in (25.5 cm) x 5.6 in (14 cm) at the front of the terminal 9.5 in (24 cm) x 4.91 in (12.5 cm) at the rear 8.03 in (21 cm) deep	10.75 in (27 cm) x 4.31 in (10.9 cm) at the base 10.25 in (26 cm) x 3.91 in (10 cm) c-c mounting 9.5 in (24.1 cm) x 5.00 in (13 cm) chassis	12.62 in (32.1 cm) x 8.03 in (21 cm) x 9.3 in (23.6 cm)
Construction	Aluminum			Stainless steel
Mounting Options	Column, desktop	Panel	Blind panel	Wall, column
Degree of Protection	NEMA 4	NEMA 4 (front panel)	NEMA 1	NEMA 4X (IP65)
Ethernet Connection	10BASE-T. Uses crossover cable from RJ-45 Ethernet port on the back of the JAGXTREME terminal to a PC (point to-point connection) or standard cable to connect to other equipment through a hub.			
Number of Attachable Platforms	4 analog or 4 POWERCELL® or 2 High Precision or 2 DigiTOL®			
Display	Two vacuum fluorescent displays. Upper display: 7 segment 0.5" (13 mm); lower display: 16-character, 5 x 7 dot matrix display 0.25" (6 mm)			
Keypad	4 x 5 matrix tactile-feel keypad with 0-9, letters A-Z, and function keys			
Interfaces	Ethernet, serial, discrete, PLC, analog, network			
A/D Rate	>300 per second			
Digital Input/Output	Maximum 12 in/12 out			
Maintenance Monitoring	TraxEMT™ Embedded Maintenance Technician system for self-diagnosis and predictive failure analysis			
Signal Processing	TraxDSP® three-stage filtering			
Power Requirements	85 to 264 VAC with a line frequency of 47 to 63 Hz			
Setup	Via embedded web server, with the front keypad or using the JagXFILES tool box.			
Scripting Language	JagBASIC (standard)			
Operating Temperature	14° F to 113° F (-10° C to 45° C) at 10% to 95% relative humidity, non-condensing			
Storage Temperature	40° F to 140° F (-40° C to 60° C) at 10% to 95% relative humidity, non-condensing			
Options	Analog, Dual Analog, Analog Reduced Excitation Dual Analog Reduced Excitation Dual Analog Output, Modbus Plus, Profibus, A-B RIO, Multifunction I/O, IDNet, POWERCELL, JagBASIC Editor			
Approvals	CE Conformity 90/384/EU – Non-automatic Balances and Scales EN45501:1992 – Adopted European Standard Weights and Measures (US) Class III or IIIL devices NTEP Certificate of Conformance No. 94-096 Weights and Measures (Australia) Class III and IIIL non-automatic weighing instruments as defined in the National Standards Commission, Document 100			

Display and Keypad

Alpha-numeric Display (xA)

The front of the JAGXTREME terminal contains two vacuum fluorescent displays and a 4 × 5 matrix tactile feel keypad in a diecast, zinc-aluminum alloy front housing.

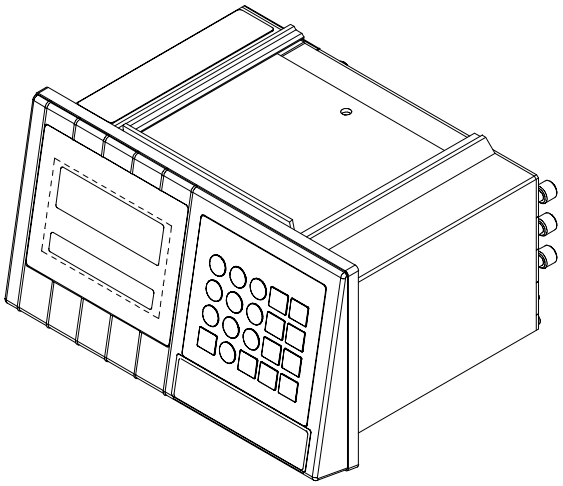
The upper weight display is a seven-digit, seven-segment 0.5 in. (13 mm) high vacuum fluorescent numeric display used to indicate weight values. Each of the seven digits has a decimal point/comma and an annunciator associated with it. The annunciators are used to indicate gross or net weights, a preset tare value, pound or kilogram weights, the center of zero, and motion.

The lower display is a 16-character, 5×7 dot matrix, 0.25 in. (6 mm) high vacuum fluorescent alphanumeric display. Each character has a period/comma and an annunciator associated with it. This display is used to indicate tare, alternate weight units, operator prompting, errors and other messages. The first 10 annunciators are used to indicate which terminal number (1 through 6) and internal scale (A-D) are currently displayed. The remainder indicates summation and weighing range.

The lens on both the general purpose and panel mount model lens are polycarbonate with hardcoating. The harsh environment model lens is polyester with hardcoating.

The keypad consists of a tactile-feel membrane switch covered with a polyester overlay. It is designed to give the operator positive feedback when pressing a key. Audible beeps can be enabled to verify key depressions.

The keypad contains the numbers 0 -9 and the letters A - Z. Other function keys include Escape, Memory, Tare, Select, Clear, space, decimal point, Zero, Enter, and Function. These keys allow access to operator prompting, setup, and many other scale functions.



1-a: Display and keypad on panel-mount version of the JAGXTREME terminal

Physical Dimensions

Panel Mount Enclosure—Alpha-numeric (PA)

Two integral brackets are used to mount this unit through a flat panel. The front panel and associated panel clamping mechanism are designed to provide a NEMA 4 (IP65) seal and accommodate a panel thickness from 16 to 11 gauge.

The panel-mount model measures:

10.05 in. (25.5 cm) × 5.6 in. (14 cm) at the front of the terminal

9.5 in. (24 cm) × 4.91 in. (12.5 cm) at the rear

8.03 in. (21 cm) deep

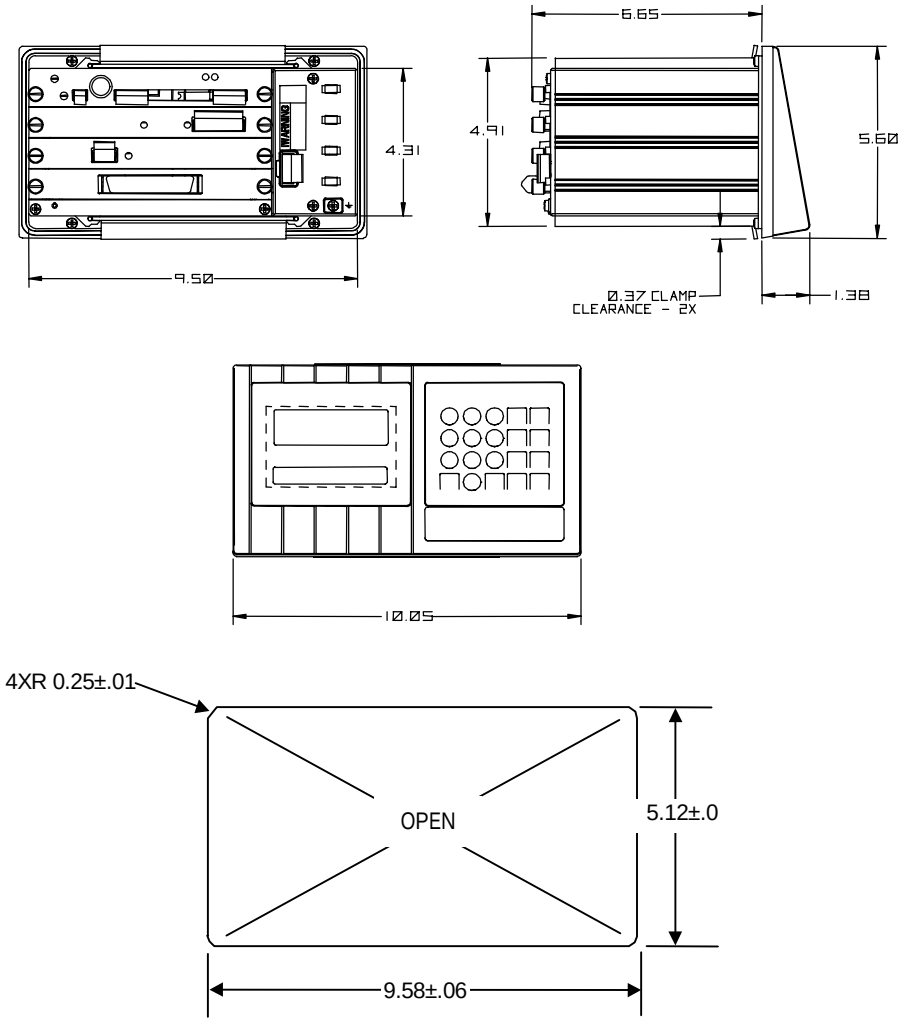


Figure 1-b: JAGXTREME Panel Mount Model and Cutout Dimensions

Panel Mount Enclosure—Blind Chassis (PB)

The front of the panel mount enclosure has a blank plate to cover the electronics and to provide a method of mounting. There is no keyboard or display on the front of the unit. This allows the terminal's use as a "blind" terminal (installed behind a panel,) sharing another JAGXTREME terminal's keyboard and display via the Ethernet connection. The terminal enclosure designed to NEMA 1 or IP30 requirements with a "blind" front panel.

The blind chassis mount model measures:

- 10.75 in. (27 cm) × 4.31 in. (10.9 cm) at the base
- 10.25 in. (26 cm) × 3.91 in. (10 cm) c-c mounting
- 9.5 in. (24.1 cm) × 5.00 in. (13 cm) chassis

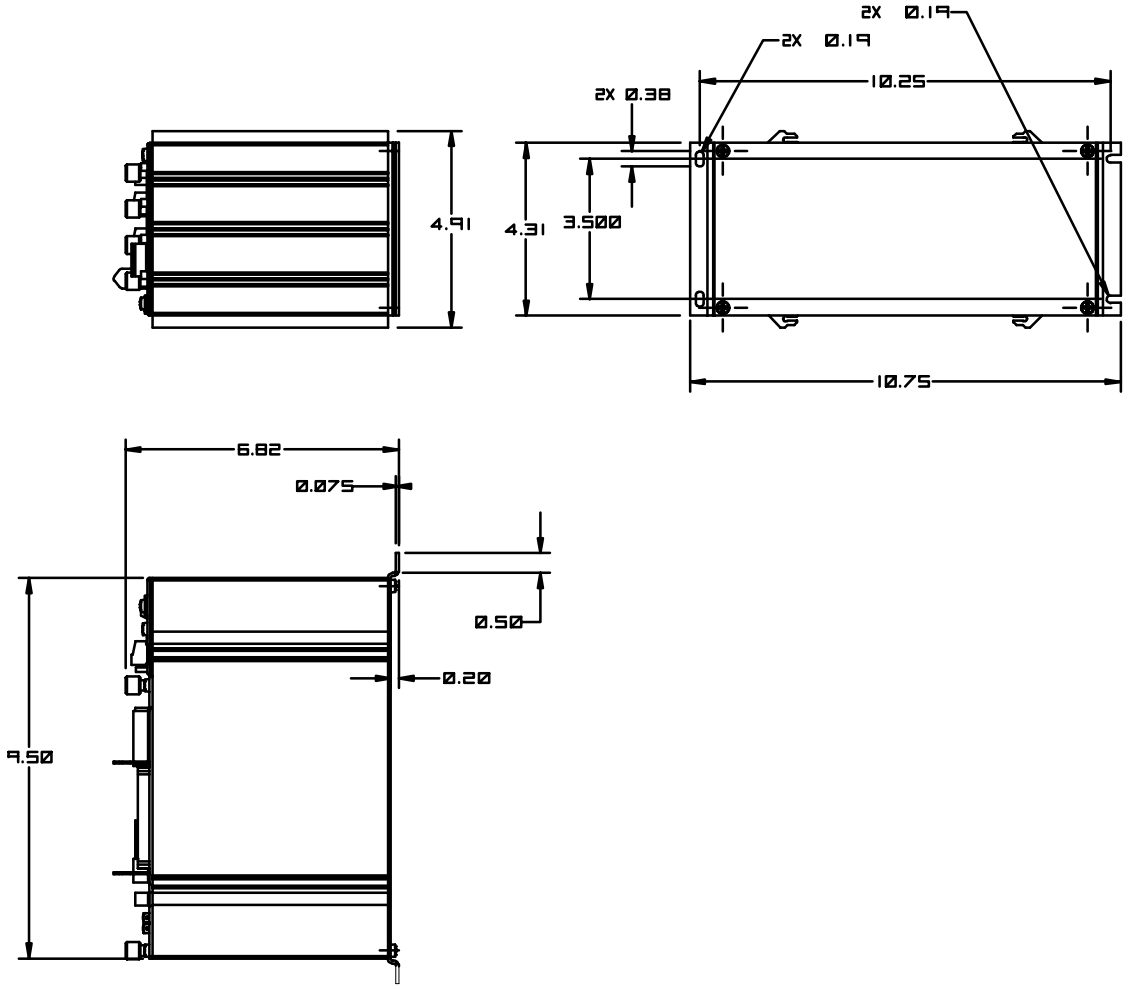


Figure 1-c: JAGXTREME Blind Chassis Model Dimensions

General Purpose Enclosure (GA)

This enclosure, which provides NEMA 4 (IP65) protection, is a die-cast zinc-aluminum alloy with an aliphatic urethane powder-coated finish. The unit is designed to sit on a flat surface or may be wall- or column-mounted with an accessory bracket kit (0917-0209). The rear cover contains grip bushings to seal all cables entering the enclosure.

The general-purpose JAGXTREME terminal model measures:

12.45 in. (25 cm) wide × 7.86 in. (20 cm) high x 10.6 in. (27 cm) deep

In figure 1-d, the top views show optional wall/column brackets (P/N 0917-0209).

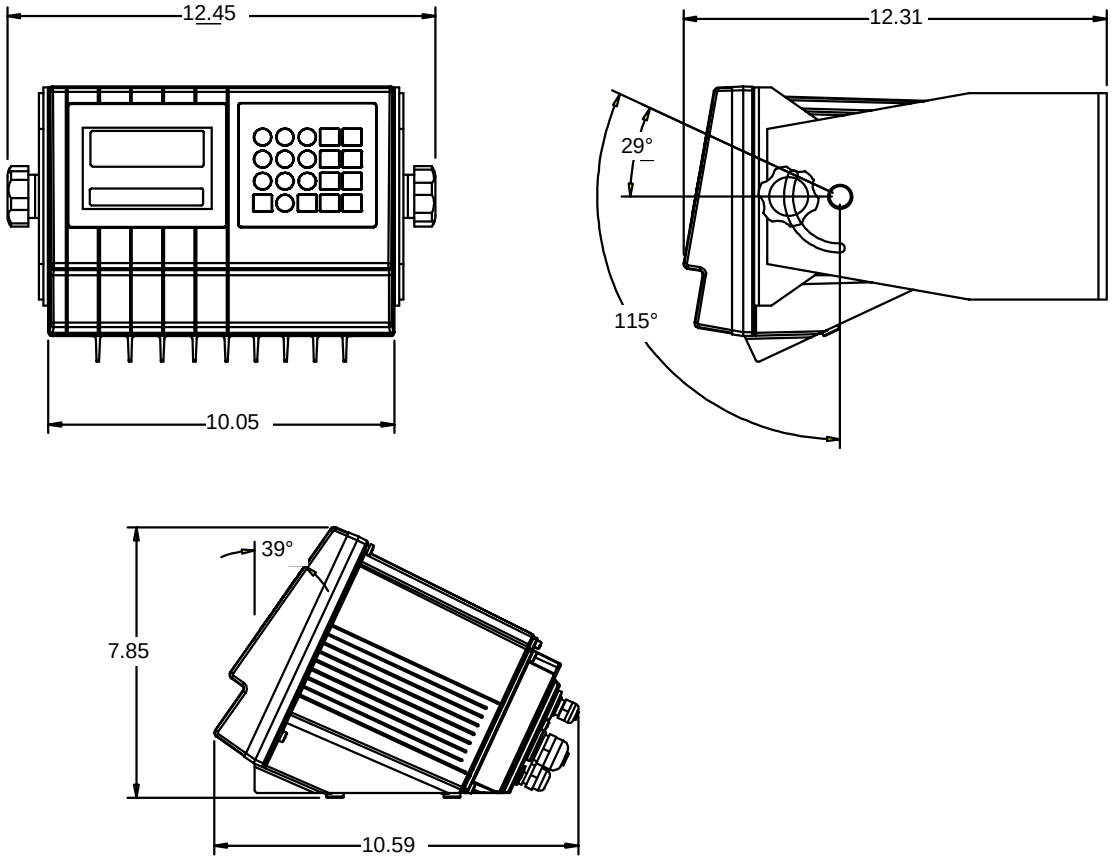


Figure 1-d: JAGXTREME General Purpose Model Dimensions

Harsh Environment Enclosure (HA)

The harsh environment enclosure provides NEMA 4X (IP65) protection and is intended for applications in which the terminal is exposed to high humidity, direct washdown, or corrosive environments. It is constructed of 304L stainless steel and meets all US FDA and comparable European requirements.

A full 4-slot JAGXTREME terminal chassis is mounted inside the enclosure. All field wiring enters into the unit through cable seals that maintain the washdown protection of the enclosure. The cable seals are located at the bottom rear of the unit. Two brackets are provided for wall mount applications. An interface adapter (0917-0233) is available for column mount applications.

The harsh environment enclosure model measures: 12.62 in (32.1 cm) x 8.03 in (21 cm) x 9.3 in (23.6 cm)

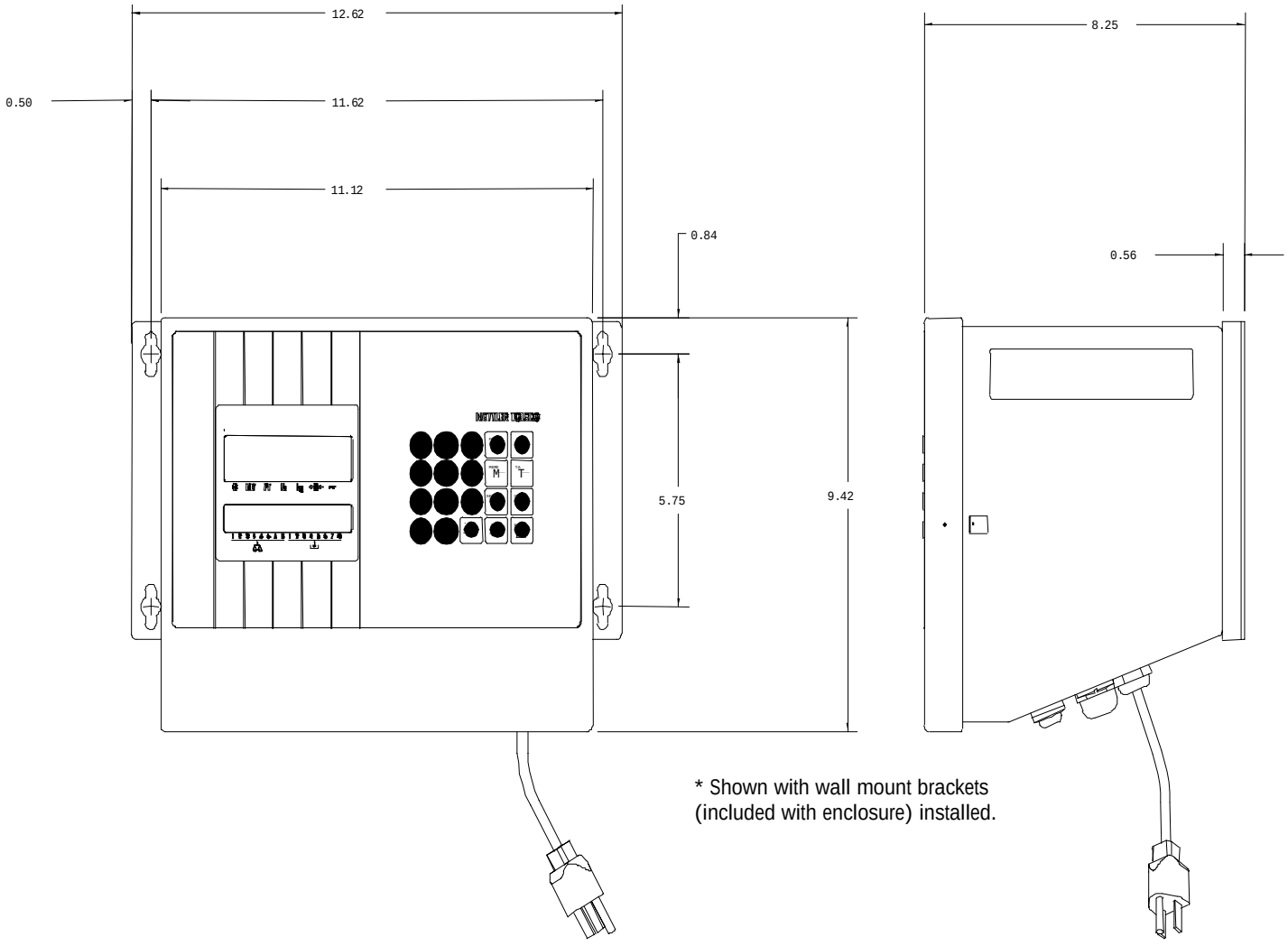


Figure 1-e: Harsh Environment Model Dimensions

Custom Applications

JagBASIC

JagBASIC provides for the development of easy-to-use custom applications. JagBASIC programs reside along side the standard JAGXTREME terminal program. The JagBASIC interpreter runs as a separate task using the terminal's multi-tasking operating system. This allows the custom JagBASIC program to interact with the other JAGXTREME terminal tasks and resources using the terminal's exclusive shared memory design. For example, to monitor a scale gross weight, the JagBASIC program relates a BASIC variable to the terminal shared data variable for gross weight then uses the BASIC variable as desired. All of the shared memory in the terminal may be accessed by the JagBASIC program using this construct.

The high level of integration permits the programmer to exploit the standard functions in the JAGXTREME terminal, making it easier to implement solid solutions in record time. To print a standard ticket or report, a JagBASIC program can load data into a JAGXTREME terminal shared data variable then print by using a standard template that is designed in the terminal setup. Rather than monitoring setpoint coincidence in the JagBASIC program, a standard setpoint shared data variable can be loaded in the program then monitored by an associated JAGXTREME terminal scale task.

Power Requirements

- 85 to 264 VAC with a line frequency of 47 to 63 Hz.
- Power consumption -- 20 Watts maximum.
- Power termination -- single three-position removable terminal strip.
- The wire size range -- 16 to 12 AWG.

Note: The integrity of the power ground for equipment is important for both safety and dependable operation of the JAGXTREME terminal and it's associated scale bases. A poor ground can result in an unsafe condition if an electrical short develops in the equipment. A good ground connection is needed to assure extraneous electrical noise pulses are minimized. It is important that equipment does not share power lines with noise generating equipment like heavy load switching, motor starter circuits, RF thermal heaters, inductive loads and the like.

To confirm ground integrity, a commercial branch circuit analyzer is recommended. This instrument uses a high amperage pulse to check ground resistance. It measures the voltage from the neutral wire to the ground connection and will provide an assessment of the line loading. Instructions with the instrument give guidelines about limits that assure good connections. Visual inspections and a query of the user will provide information about equipment sharing the power line.

The power line for the JAGXTREME terminal must not be shared with equipment such as motors, relays, or heaters that generate line noise. If adverse power conditions exist, a dedicated power circuit or power line conditioner may be required.

Controller PCB

- Four discrete inputs (PAR1).
- Four discrete outputs (PAR2)(5 to 30 Volts DC).
- The output current is 35 mA per discrete output up to 115 mA maximum total current draw on the +5 Volts DC supply.
- Inputs can be defined as clear (return to gross), tare, print, zero, and other keyboard functions.
- Outputs can be defined for coincidence setpoints or a variety of scale conditions.
- The COM1 serial port can be either RS-232 or 20 mA current loop active transmit. Both are available simultaneously.
- The COM2 serial port can be either RS-232 or RS-422/RS-485. This port is also used to support a DigiTOL or UltraRes scale interface.
- Keyboard input is a standard 6-pin PS2 type mini DIN connection for a compatible keyboard.
- The Ethernet network connection is accomplished using a RJ45 connection.
- Connections to the Controller PCB are made using four removable terminal strips. The wire size range for these terminal strips is 23 to 16 AWG.
- The Controller PCB stores DigiTOL scale calibration parameters in its EEPROM. If analog load cell scale(s) are installed, the calibration parameters for each scale are stored in the EEPROM of its Analog PCB. IDNET calibration parameters are stored in the base. POWERCELL parameters are stored on the POWERCELL PCB.

Temperature and Humidity

- Operating temperature: 14 to 113º F (-10 to 45º C) at 10% to 95% humidity, non-condensing.
- Storage temperature: -40 to 140º F (-40 to 60º C) at 10% to 95% humidity, noncondensing.
- The optional Analog PCB zero temperature coefficient is 0.15 µV/º C. Span temperature coefficient is 6 ppm/° C maximum.

Environmental Protection

The JAGXTREME terminal is not intrinsically safe! In addition to the Reduced Excitation Analog Scale option, a METTLER TOLEDO Hazardous Area Protection safety module is required for JAGXTREME terminals operating with scales located in a hazardous area. Contact your METTLER TOLEDO representative for information.

WARNING!

THE JAGXTREME TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE IN AREAS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRIC CODE (NEC) BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

Standards Compliance

UL and cUL Listing

The JAGXTREME terminal has been tested and complies with UL 1950 and CSA 22.2 No. 950-M89. The JAGXTREME terminal carries the UL and cUL labels.

Weights and Measures Approval

United States

The JAGXTREME terminal meets or exceeds requirements for Class III or IIIL devices. Certificate of Conformance No. 94-096A4 was issued under the National Type Evaluation Program of the National Conference on Weights and Measures.

Canada

The JAGXTREME terminal meets or exceeds requirements for a 10,000 division rating and approval AM-5041 has been issued by statutory authority of the Minister of Industry, Science and Technology of Canada.

Australia

The JAGXTREME terminal meets or exceeds the requirements for Class III and IIIL non-automatic weighing instruments as defined in the National Standards Commission, Document 100. The National Standards Commission has approved the JAGXTREME terminal for use with approved and compatible platforms.

Europe

The JAGXTREME terminal was submitted for approval to The Nederlands Meetindtituut (NMi) in the Netherlands. After evaluation, the JAGXTREME terminal was found to meet and/or exceed the requirements for a Class III weighing instrument. EC type approval certificate TC2618 (Revision 5) was issued by the NMi in accordance to Council Directive 90/384/EEC.

CE Conformity

The JAGXTREME terminal conforms to the following European Union regulations:

- 90/384/EU—Non-automatic Balances and Scales
- EN45501:1992—Adopted European Standard
- 89/336/EU—EMC Directive
- EN55022, A 01.04.87

Conducted and Radiated Emissions (RFI)

The JAGXTREME terminal meets or exceeds FCC Part 15 for conducted and radiated emissions requirements as a Class A digital device.

Radio Frequency Interference Susceptibility

The JAGXTREME terminal meets US, Canadian, and European requirements for RFI susceptibility as listed in the following table with a maximum of one display increment of change when calibrated for recommended builds.

Radio Interference Frequency	Field Strength
26-1000 MHz	3 volts/meter

AC Power Line Voltage Variation

The JAGXTREME terminal meets NIST H-44, Canadian Gazette Part 1, and OIML-SP7/SP2 line voltage variation specifications as listed in the following table.

AC Power Line Voltages						
Specification	AC Line Voltage			Line Frequency in Hz		
Line Voltage Variation	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
NIST H-44	100	120	130	59.5	60	60.5
Canadian	108	120	132	58.8	60	61.2
OIML-SP7/SP2	102 187 204	120 220 264	132 242 264	58.8 49.0 49.0	60 50 50	61.2 51 51

2 Installation

Unpacking and Inspection

If upon delivery the shipping container for the JAGXTREME terminal appears damaged, check for internal damage and file a freight claim with the carrier if required. If the container is undamaged, unpack the JAGXTREME terminal from its protective package, noting how it was packed, and inspect each component for damage. If it is necessary to ship the terminal at any time, use the original shipping container if possible.

Package contents for all JAGXTREME terminals include:

- JAGXTREME terminal
- Screwdriver
- Installation guide
- Set of capacity labels
- Weights and Measures sealing screws
- Mating connectors for the I/O port
- Cable tie wraps
- JAGXTREME CD with documentation and ancillary software

Package contents for the panel mount and blind chassis JAGXTREME terminal include:

- Six (6) nylon cable ties
- 2 mm Allen wrench (panel mount only)

Package contents for the harsh environment JAGXTREME terminal include:

- 2 stainless steel wall mount brackets
- 4 stainless steel bolts for attaching the wall mount brackets
- Hardware kit (*)15411500A

Note: The (*) designation before a part number indicates that the part number may be proceeded by a letter designation such as A, B, C and so on.

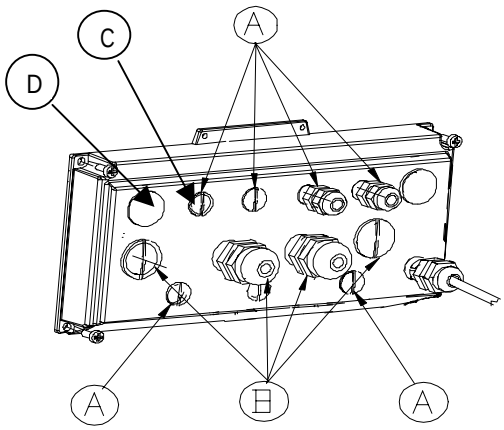
Package contents for the general purpose JAGXTREME terminal includes:

- Hardware kit (*)15411400A

Installing the General Purpose Model

Place the general purpose (desk top) model at the operating site.

- Remove the four screws securing the rear access cover to the main housing using a Phillips head screwdriver.
- With the rear access cover removed, you are now ready to make connections to the unit. Figure 2-a describes the recommended wiring connections.



Reference Letter	Suggested Cable
A	Serial I/O Cables (Except DigiTOL) PLC I/F Cabling Ethernet Wiring
B	Analog Load Cell Cabling DigiTOL Load Cell Cabling
C	Ethernet Cable
D	QWERTY Keyboard

Figure 2-a: General Purpose Wiring Connections and Cable Chart

To connect the unit:

Be careful to select an opening close to the terminal block you are wiring to keep the wiring neat and easy to connect.

1. Pass the cables that enter the general-purpose enclosure through an appropriately sized cable grip before connecting the wires.
2. Tighten the cable grip to provide a water-tight seal around the cable after re-securing the back cover. This allows any internal cable slack to be received through the cable grip.
3. Continue to the section entitled Electrical Connections.

Installing the Panel Mount Model

Refer to Figure 2-b and the instructions below to install the panel mount terminal.

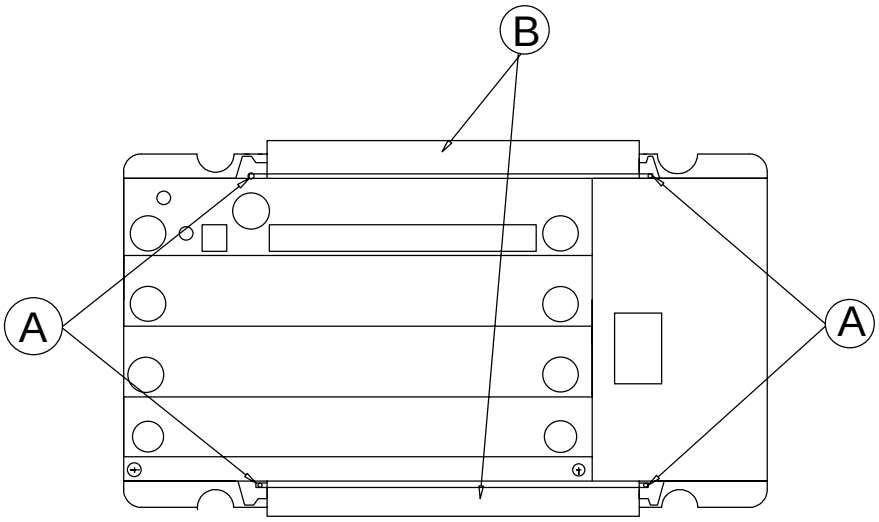


Figure 2-b: Panel Mount Installation Diagram

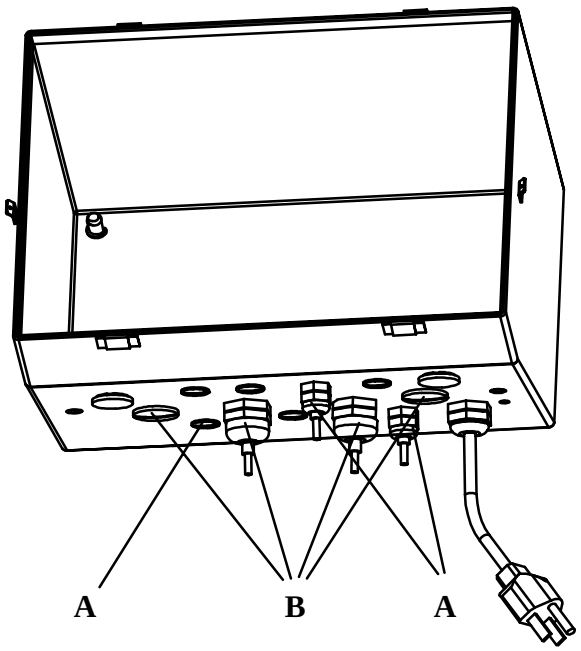
1. Cut an opening 9.58 in. (24.33 cm) × 5.12 in. (13.0 cm) to accommodate the terminal. The tolerance for the panel cutout is ±0.06 in. (0.15 cm).
2. Using the Allen wrench included with the unit, remove the four retaining set screws (A) located at the rear of the enclosure in the top and bottom mounting plate grooves.
3. Remove both mounting plates (B).
4. Insert the terminal through the panel opening from the front until it is flush against the panel. Confirm that the terminal is installed right side up.
5. Slide the top and bottom mounting plates back in the grooves and push them flush against the panel from the back. The flared end of the plate should contact the back of the panel.
6. Holding the unit in place, replace the four set screws and tighten until the unit is secured and the front panel gasket is compressed.
7. Inspect the front of the JAGXTREME terminal for a good seal to the front of the enclosure.
8. Continue to the section entitled Electrical Connections.

Installing the Harsh Environment Enclosure

Opening the Enclosure

1. Disconnect power.
2. Locate the two slots on the bottom lip of the front of the harsh environment enclosure.
3. Gently insert the blade of a slotted screwdriver into one of the slots and press inward (toward the enclosure). This releases a pressure tab that allows the access panel of the enclosure to open slightly.
4. Repeat steps 2 and 3 for the other slot.
5. Remove the access panel away from the enclosure. The access panel is connected to the Controller PCB by a cable and cannot be removed without disconnecting the cable. You should be able to access the unit with the front panel connected.

With the access cover removed, you are now ready to make connections to the unit. Figure 2-c describes the recommended wiring connections.



Reference Letter	Suggested Cable
A	Serial I/O Cables (Except DigiTOL) PLC I/F Cabling Ethernet Wiring
B	Analog Load Cell Cabling DigiTOL Load Cell Cabling

Figure 2-c: Harsh Environment Wiring Connections and Cable Chart

Mounting the Enclosure

1. Locate the two mounting brackets that came in the JAGXTREME terminal package.
2. Mount the brackets using the four stainless steel screws supplied with the unit. Refer to Figure 2-d and note the correct positioning of the brackets. The slotted holes must protrude beyond the enclosure and the bracket tabs must point toward the front as shown.

* Shown with wall mount brackets (included with enclosure) installed.

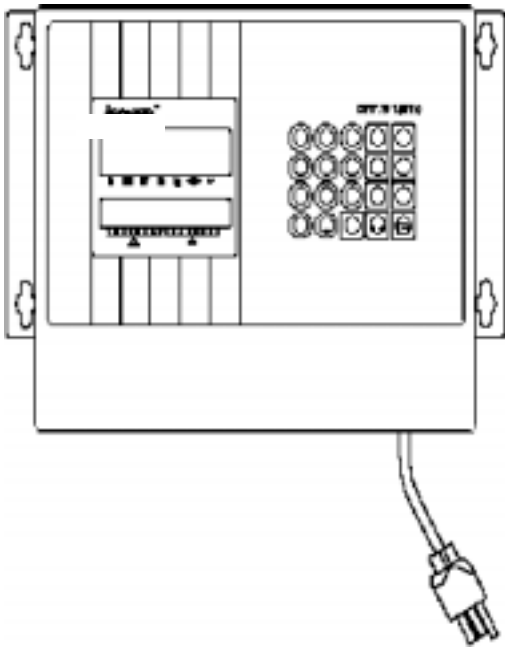
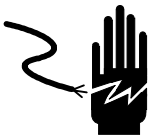


Figure 2-d: Wall Mount (Harsh Environment) Brackets

3. Tighten the brackets to the back of the enclosure (torque 25 inch pounds).
4. Using the dimensions given in Figure 2-d, prepare the mounting surface to accept the enclosure. The mounting surface and brackets must be able to support a total of 45 lb (20 kg).
5. Place the enclosure on the mounting surface and secure with appropriate fasteners.

Electrical Connections



WARNING!

PERMIT QUALIFIED PERSONNEL ONLY TO SERVICE THIS EQUIPMENT. DISCONNECT ALL AC POWER TO THIS UNIT BEFORE SERVICING OR REMOVING THE FUSE. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON.

Connect the Load Cell

Make the load cell connection to the Controller PCB (DigiTOL scales), the optional Analog A/D PCB (analog load cells), or the POWERCELL I/O PCB (CMOS POWERCELLs).

WARNING!

IF THE SCALE IS LOCATED IN A HAZARDOUS ENVIRONMENT, A SPECIAL ANALOG LOAD CELL BOARD MUST BE USED WITH A METTLER TOLEDO INTRINSIC SAFETY MODULE (BARRIER). LOAD CELLS MUST BE ON APPROVED LISTING 122502 AND INSTALLED IN ACCORDANCE WITH 118164 AND 103998.

CAUTION

TO AVOID DAMAGE TO THE PCB OR LOAD CELL, REMOVE POWER FROM THE JAGXTREME TERMINAL AND WAIT AT LEAST 30 SECONDS BEFORE CONNECTING OR DISCONNECTING ANY HARNESS.

CAUTION

DO NOT ATTACH AN ANALOG LOAD CELL TO THE DIGITOL SCALE INPUT ON THE CONTROLLER PCB COM2. DO NOT ATTACH A DIGITOL SCALE TO THE ANALOG LOAD CELL INPUT ON THE OPTIONAL ANALOG A/D PCB. DOING SO MAY RESULT IN DAMAGE TO THE LOAD CELL OR PCB.

Analog Load Cell Connections

The maximum cable length for analog load cell connections to the JAGXTREME terminal depends on the total scale resistance (TSR) of the scale base. To calculate TSR:

$$TSR = \frac{\text{Load Cell Input Resistance (Ohms)}}{\text{\#Load Cells}}$$

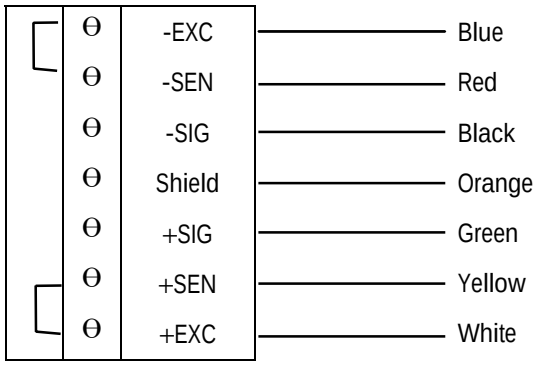
The chart below gives recommended cable lengths based on TSR and cable gauge.

Recommended Maximum Cable Length			
TSR (Ohms)	24 Gauge* (feet/meters)	20 Gauge (feet/meters)	16 Gauge (feet/meters)
350	800/243.84	2000/609.6	4000/1219.2
87	200/60.96	600/182.88	1000/304.8
58	100/30.48	300/91.44	500/152.4
35	70/21.336	190/57.91	350/106.68

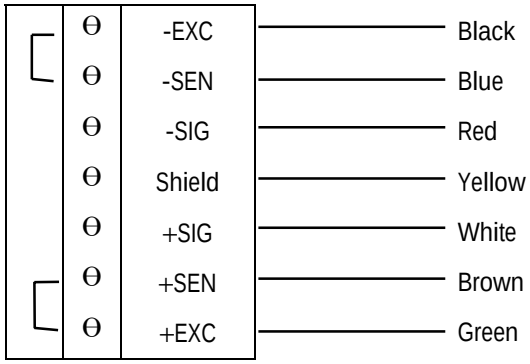
* Refer to the section entitled Cables/Connectors in Chapter 6 of this manual.

The following diagrams describe analog load cell terminal strip wiring for standard 6-wire cable, Masstron 6-wire cable, and standard 4-wire cable.

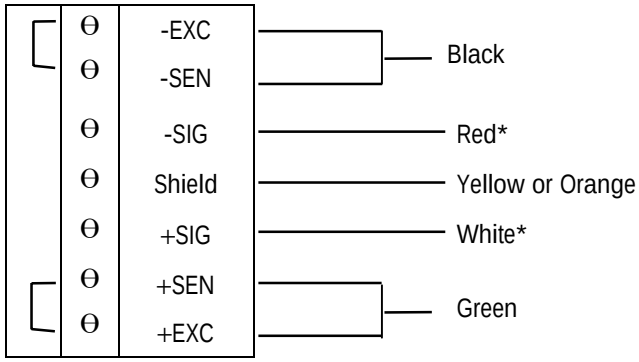
Standard 6-wire Cable



Masstron 6-wire Cable



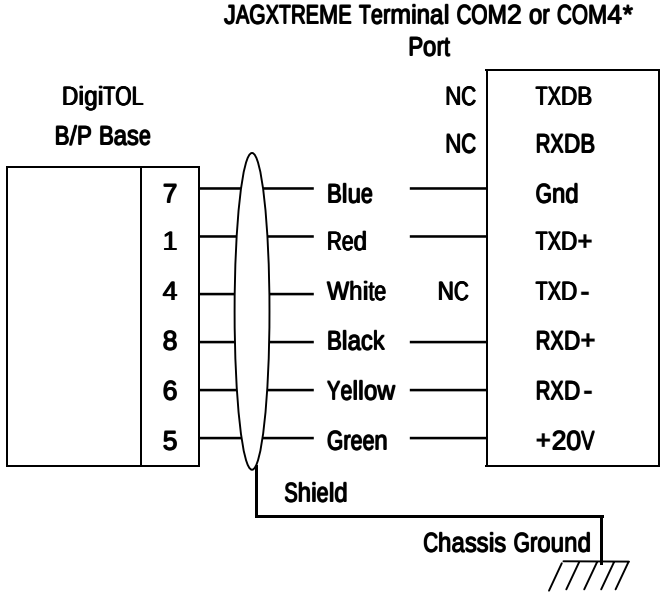
4-wire Cable



* If an increase in load results in a decrease in weight display, reverse the signal wires (+SIG and –SIG).

UltraRes and DigiTOL Load Cell Connections

The maximum recommended cable length for all DigiTOL bases is 50 feet (15.24 meters). The following diagram describes DigiTOL load cell terminal strip wiring.



*When interfacing a DigiTOL or UltraRes base to COM4 (available on the optional Multifunction PCB), W2 must be set for 20V. Refer to the section entitled JAGXTREME Terminal Jumper and Switch Settings in this chapter.

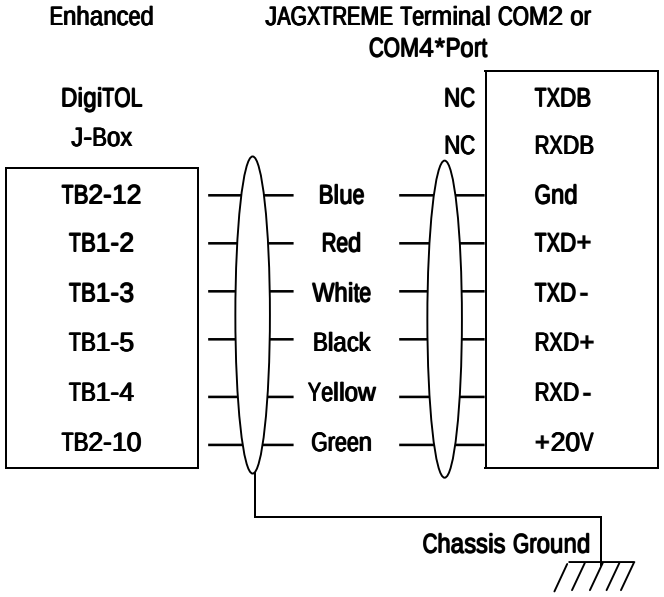
Enhanced DigiTOL J-Box Connections

Use the following table to determine the cable gauge and recommended distance between the JAGXTREME terminal and the Enhanced DigiTOL J-Box.

Cable Gauge	Cable Distance	Part Number
6 cond. 24 AWG	Up to 150 feet (45.72 meters)	510624370 or 14264100A
*6 cond. 20 AWG	Up to 300 feet (91.44 meters)	510620370

*6 conductor 16 AWG cable can also be used. The maximum cable distance remains 300 feet.

The following diagrams describe DigiTOL terminal strip wiring.

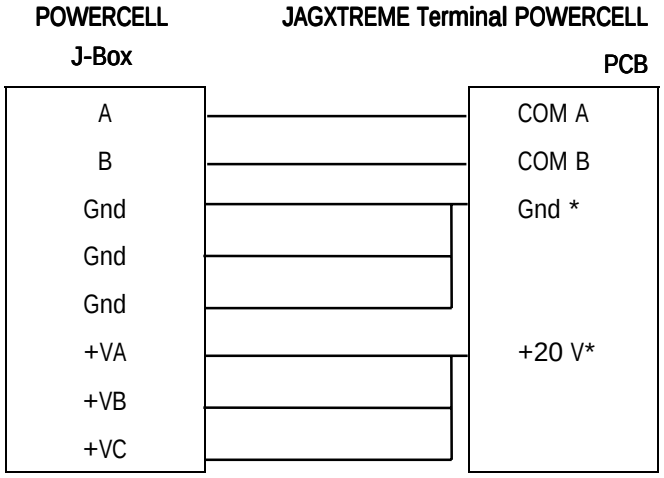


POWERCELL Connections (Non-Hazardous Area CMOS POWERCELL Applications)

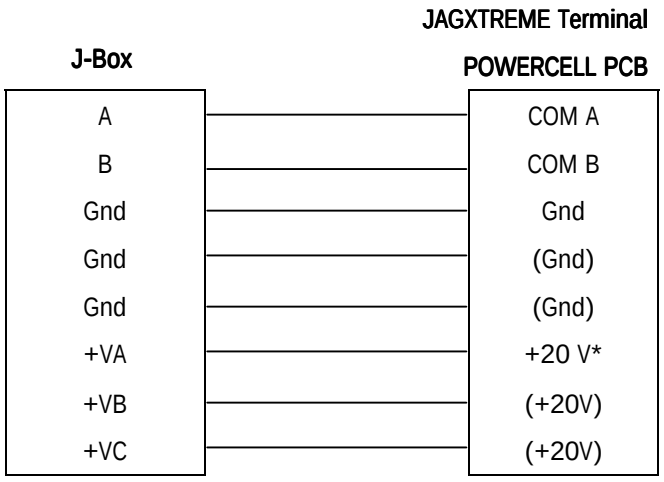
Recommended maximum cable distance is 900 feet (274.32 meters) for all CMOS non-hazardous applications regardless of the number of cells (assuming 16 or 20 gauge wire).

For more details on installations in hazardous areas using POWERCELL Intrinsic Safety Barriers, refer to the POWERCELL installation instructions (P/N 142463 00A), and Print TC100442 (included in the POWERCELL installation instructions).

*There should be three +20V and three ground wires in the cable between the Junction Box and the POWERCELL PCB.



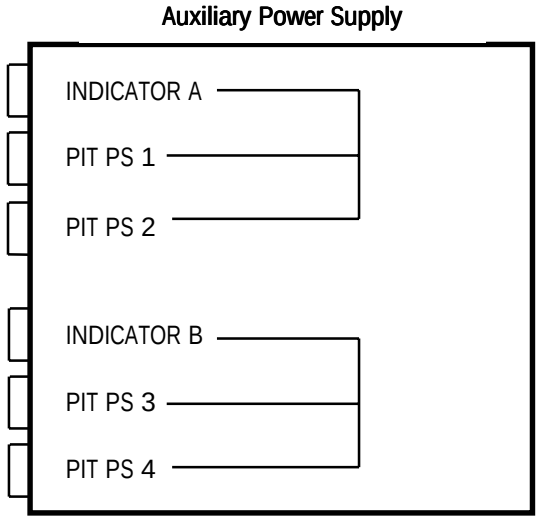
Connection for revised JAGXTREME terminal POWERCELL PCB.



External power for Pin 1 is +V and Pin 2 is ground.

POWERCELL Connections to DigiTOL Scales with NMOS POWERCELLs and Pit Power Supplies

For applications in which the POWERCELL PCB is connected to a DigiTOL Scale with POWERCELL load cells, the JAGXTREME terminal must be wired with the auxiliary power supply (P/N 0917-0168 for 100/110/120 VAC operation, 0917-0169 for 220/240 VAC operation).

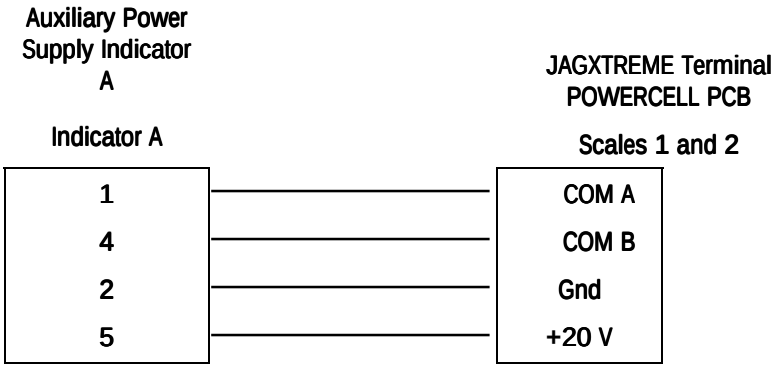


The purpose of the auxiliary power supply is to provide two identical circuits, each with a 24 VDC power supply output capable of driving up to two Pit Power Supplies. Each Pit Power Supply can drive a maximum of 12 NMOS load cells. As shown above, the INDICATOR A and B inputs are connected to the PIT PS outputs. The two circuits are completely isolated. The only exception is the same 24 VDC power supply output being used for PIT PS1 and 3. The second 24 VDC supply is shared between PIT PS2 and 4.

If only one channel is needed, INDICATOR A must be used.

The W1 jumper is located on the printed circuit board in the Auxiliary Power Supply. The W1 jumper enables and disables the circuit that senses voltage at the INDICATOR B input. If this circuit is enabled (W1 removed) and input voltage at pin 5 of both INDICATOR A and B is not present, the 24 VDC output at PIT PS 1, 2, 3, and 4 will be turned OFF. If only the INDICATOR A input is being used, jumper W1 must be inserted shorting both pins.

Connect the JAGXTREME terminal to the Auxiliary Power Supply as follows:



If a second JAGXTREME terminal exists, the interface cable between the second terminal and the Auxiliary Power Supply would be wired the same. However, the interface cable would plug into the Auxiliary Power Supply at INDICATOR B. The W1 jumper on the Auxiliary Power Supply **must not** be shorting the two pins together.

Replacing an Existing 8146 or 8530 on a DigiTOL Scale having an Auxiliary Power Supply and Pit Power Supply(s)

Wire the JAGXTREME terminal POWERCELL PCB to the Auxiliary Power Supply as shown previously. The home-run cables plugged into PIT PS 1, 2, 3, or 4 can be left as is.

Replacing an Existing 8530 on a DigiTOL Scale with a Pit Power Supply and not having an Auxiliary Power Supply

An Auxiliary Power Supply must be supplied. Wire the JAGXTREME terminal POWERCELL PCB to the Auxiliary Power Supply as shown previously. Plug the home-run cable from the 8530 into PIT PS 1.

Shield wire must be connected to chassis ground or "GND" terminal at the JAGXTREME terminal end for reliable operation.

You can purchase this adapter harness (0900-0284) or cut the base cables and wire directly to the terminals.

Replacing an Existing 8146 or 8530 on a DigiTOL Scale if a Second Scale Is Present

The POWERCELL PCB should be programmed for two scales (Scale 1 + Scale 2 = 24 load cells maximum). The home-run cable(s) should be plugged into PIT PS 1 (and PIT PS 2 if a second home-run cable exists).

Replacing an Existing 8146 or 8530 on a DigiTOL Scale if a Third Scale Is Present

The first JAGXTREME terminal with a POWERCELL PCB should be wired as indicated previously. The second terminal with a POWERCELL PCB should be wired into INDICATOR B of the Auxiliary Power Supply and the home-run cable going to the third scale should be plugged into PIT PS 3 or 4.

Home-Run Cable Maximum Length

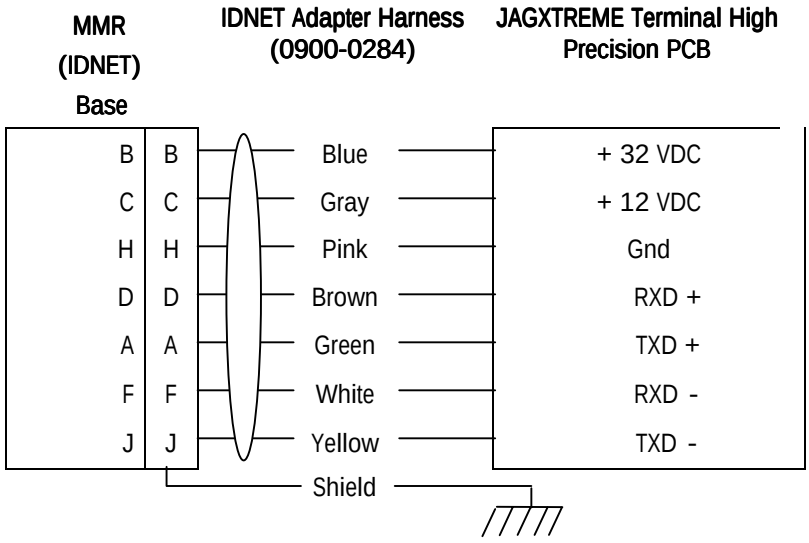
The maximum cable distance from the PIT Power Supply to the JAGXTREME terminal POWERCELL PCB depends on the number of POWERCELLs, home-run cable gauge, and the AC power voltage level. Use the following table to determine the cable gauge and recommended cable distance:

Number of Cells	Home-Run Cable Distance	
	20 Gauge (Feet/Meters)	16 Gauge (Feet/Meters)
4	900/274.32	900/274.32
6	712/217.018	900/274.32
8	475/144.78	900/274.32
10	332/101.19	878/267.61
12	237/72.24	644/196.29

MMR (IDNET) Base Cable Connections

The maximum recommended cable length for MMR (IDNET) bases is 300 feet (91.44 meters.)

The following diagram describes MMR cell terminal strip wiring.



Connect the Power Cable

A power cord is provided with the general purpose and harsh environment JAGXTREME terminal. Connection to the panel mount JAGXTREME terminal must be made at installation. The AC power connection must be wired as follows for wall/desk mount and panel mount models:

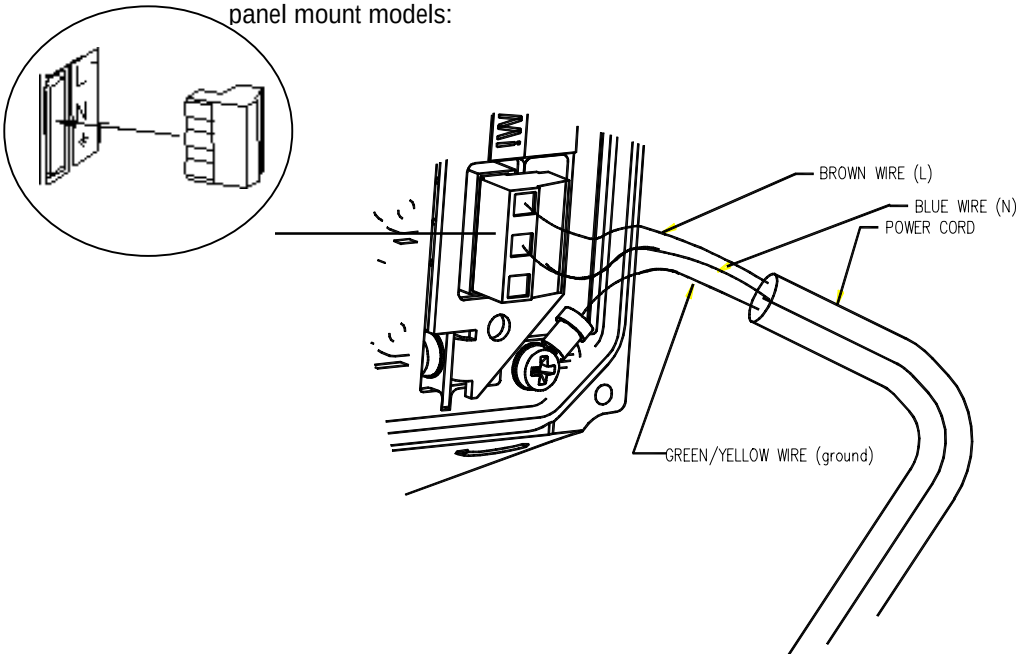


Figure 2-e: Power Connections - Wall/Desk Mount

Some regions and/or power cords may use different color codes than shown.

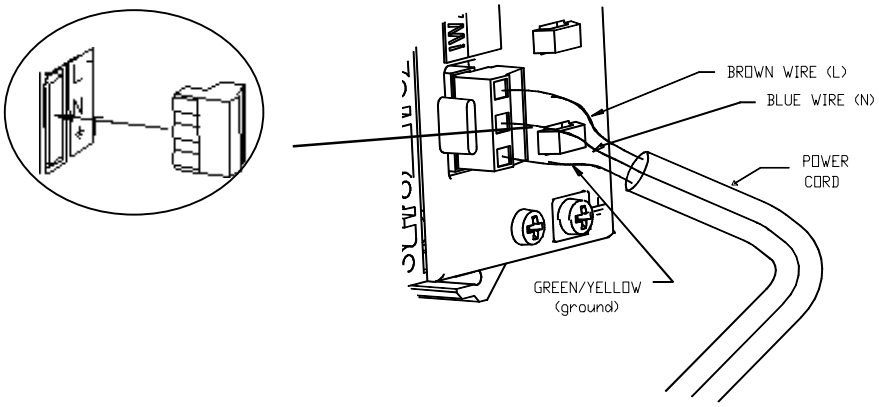


Figure 2-f: Power Connections - Panel Mount

The terminal strip will accommodate wire sizes from 16 to 12 AWG. The wire size used must meet all local and national electrical codes. On panel mount models, you must secure the wiring with a cable tie as a strain relief. Cable ties are supplied loose. If the power terminal strip is removed from the terminal, reinsert it until it is completely seated in the jack at the rear of the enclosure. A clip holds the connector securely in place.

WARNING!

USE ONLY THE POWER CORD SUPPLIED OR AN EQUIVALENT TYPE. U.S. MODELS USE TYPE SJT CORD; EC MODELS USE HARMONIZED TYPE H05VV-F CORDS.

WARNING!

IMPROPER INSTALLATION OF THE POWER CABLE WILL RESULT IN APPLYING 120 VAC TO GROUND. THE HOT WIRE MUST BE ON TOP. THE TERMINAL SCREWS SHOULD FACE AWAY FROM THE OPTION CIRCUIT BOARD SLOTS.

An auxiliary chassis ground screw is located at the lower right corner of the power supply cabinet. This ground connection is provided for surge voltage protection applications and for chassis ground. On panel mount models (JTPx) you must connect a safety ground to this screw.

CAUTION

FOR PANEL MOUNT INSTALLATIONS:

- INCLUDE A POWER DISCONNECT SWITCH IN AC POWER WIRING.
- SWITCH MUST BE WITHIN 10 FEET (3 METERS) AND EASILY ACCESSIBLE TO OPERATOR.
- SWITCH MUST BE CLEARLY IDENTIFIED AS DISCONNECT FOR TERMINAL POWER.
- SWITCH AND/OR CIRCUIT BREAKER MUST COMPLY WITH APPROPRIATE ELECTRICAL CODES (FOR EC—IEC947).

FOR DESK/WALL INSTALLATIONS:

- POWER CORD PLUG MUST BE CLEARLY IDENTIFIED AS DISCONNECT FOR TERMINAL POWER.
- POWER CORD MUST BE PLUGGED INTO OUTLET WITHIN 10 FEET (3 METERS) AND EASILY ACCESSIBLE TO OPERATOR.

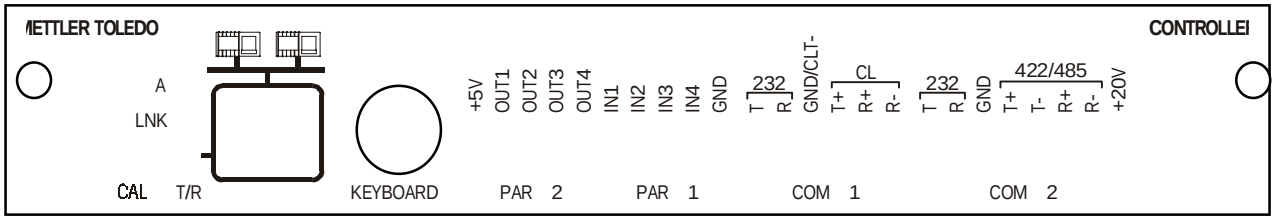
CAUTION

DO NOT APPLY AC POWER TO THE JAGXTREME TERMINAL NOW.

Serial Port Connections—Controller PCB

Refer to the following diagrams for proper cable connections to the JAGXTREME terminal's serial ports COM1 and COM2. COM1 and COM2 are located on the Controller board, which is positioned in the top slot.

The COM1 and COM2 terminal strips will accommodate wire sizes from 23 to 16 AWG. The terminal strips may be removed to facilitate wiring. Removal of the terminal strips permits easier viewing of the terminal designations printed on the board back plate.



For enclosures using the pass-through cable grips, you must pass the cable through the grip, grommet, and housing before wiring to the connector.

COM1 20 mA (Controller PCB Serial Port)

The following diagram and table describe COM1 pin-to-pin cable connections using a 20 mA loop. The maximum recommended cable length for 20 mA interfacing is 1000 feet (304.8 meters).

JAGXTREME Terminal COM1

Θ	TXDA	
Θ	RXDA	
Θ	Gnd	Signal Ground (Active Current Loop Transmit -)
Θ	CLTX+	Active Current Loop Transmit +
Θ	CLRX+	Current Loop Receive +
Θ	CLRX-	Current Loop Receive -

Compatible METTLER TOLEDO Serial Devices								
JAGXTREME Terminal COM1	**8804* 8860***	**8806****	**8855**	**8842 8843 8844 8845 8856*****	**8622 8623**	**8614 8616 8619**	**8617 9323 9325**	**MP750**
TXDA	—	—	—	—	—	—	—	—
RXDA	—	—	—	—	—	—	—	—
GND	18	18	22	23	10	12	9	11
CLTX+	16	16	3	25	8	11	8	25
CLRX+	—	11	—	—	—	—	—	—
CLRX–	—	22	—	—	—	—	—	—

* Pinout shown is for use with Plug In Adapter (8804 P/N 127358 00A; 8860 P/N 128019 00A).

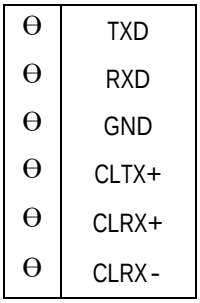
** This cable also requires jumper pins 12 to 23 at the 8806 end of the Interface cable.

*** The 8856 requires the optional 20 mA to RS-232 Adapter (P/N 900936 00A) for 20 mA loop applications.

COM1 RS-232 (Controller PCB Serial Port)

The following diagram and table describe COM1 pin-to-pin cable connections using an RS-232 cable. Maximum recommended cable length is 50 feet (15.24 meters).

JAGXTREME Terminal COM 1



	TXD	RS-232 Transmit
	RXD	RS-232 Receive
	GND	Signal Ground
	CLTX+	
	CLRX+	
	CLRX-	

Pin Connection for METTLER TOLEDO Devices Using COM1 RS-232

JAGXTREME Terminal COM1	8622 8804** 8806 8840 8842 8843 8844 8845 8855*** 8856 8860** 8865 MP750	8617-TB2 9323-TB2 9325-TB2	8618
TXDA	3*	2	InputCom
RXDA	—	—	—
GND	7*	3	RS232 Input
CLTX+	—	—	—
CLRX+	—	—	—
CLRX–	—	—	—

*Each of these devices uses this connection.

**Pinout shown is for use without Plug In Adapter (8804 P/N 127358 00A, 8860 P/N 128019 00A).

***The 8855 using RS-232 must have the 129618 00A Interface PCB. The baud rate for the JAGXTREME terminal must be set to 300 baud. If the interface PCB is part number 123654 00A or 137651 00A, the JAGXTREME terminal TXDA terminal must be connected to Pin 2 of the 8855 Interface PCB. In this case, set the JAGXTREME terminal baud rate to 1200.

COM2/COM4 RS-232 (Controller PCB Serial Port)

The following describes COM2 pin-to-pin cable connections using an RS-232 cable and the connections to COM4 when an optional Multifunction I/O PCB is installed. The maximum recommended cable length for RS-232 is 50 feet (15.24 meters). Maximum recommended total distance for RS-422 and RS-485 is 2000 feet (609.6 meters).

JAGXTREME Terminal COM2/COM4

The W2 jumper on the Multifunction I/O PCB determines the COM4+20 V terminal voltage output. Please refer to the section entitled JAGXTREME Terminal Jumper and Switch Settings in this chapter.

θ	TXD	RS-232 Transmit
θ	RXD	RS-232 Receive
θ	GND	Signal Ground
θ	TXD+	RS-422/485 Transmit +
θ	TXD-	RS-422/485 Transmit -
θ	RXD+	RS-422/485 Receive +
θ	RXD-	RS-422/485 Receive -
θ	+20 V	+20 VDC Supply

Pin Connection for METTLER TOLEDO Devices Using COM2 RS-485			
JAGXTREME Terminal COM2	**8622 8804** 8806 8840 8842 8843 8844 8845 8855*** 8856 8860** 8865 MP750**	**8617-TB2 9323-TB2 9325-TB2**	**8618**
TXDB	3*	2	—
RXDB	—	—	—
GND	7*	3	—
TXD+	—	—	RS-485B
TXD–	—	—	RS-485A
RXD+	—	—	—
RXD–	—	—	—
+20 V	—	—	—

*Each of these devices uses this connection.

Pinout shown is for use **without Plug In Adapter, (8804 P/N 127358 00A; 8860 P/N 128019 00A).

***The 8855 using RS-232 must have the 129618 00A Interface PCB. The JAGXTREME terminal must be set to 300 baud. If the interface PCB is part number 123654 00A or 137651 00A, the JAGXTREME terminal TXDA terminal must be connected to Pin 2 of the 8855 Interface PCB. In this case the JAGXTREME terminal must be set to 1200 baud.

Discrete Wiring

The Controller PCB contains four discrete input and four discrete output connections.

For more information see the section entitled Inputs in Appendix 2 at the back of this manual.

PAR 1 Input Connections

The input connections must be referenced to ground. A switch or relay contact may be used to make this connection. The remote device should hold the input at logic ground for at least 100 ms. Scale functions are performed when the input is held to ground (leading edge triggered). The maximum recommended cable length between the remote device and the JAGXTREME terminal is 10 feet (3.04 meters).

Each of the four PAR 1 inputs can be configured for different remote inputs including input from the JAGXTREME keypad (Tare, Clear, Zero, Select, Escape, and Enter). PAR 1 inputs can also be configured for remote print, unit switching, alternate scale selection, or template selection. Polarity (switch to ground or open a ground connection to initiate remote input) can also be selected. Refer to Chapter 3.

For more information see the section entitled Outputs in Appendix 2 at the back of this manual.

PAR 1 Terminal

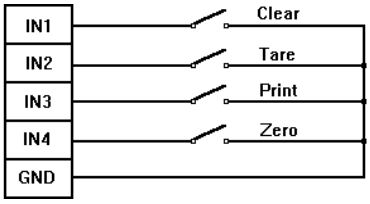


Figure 2-g: Input Wiring Example

PAR 2 Output Connections (Setpoints)

Each of the four PAR 2 outputs can be configured to announce Setpoints 1 through 12 coincidence. The 12 setpoint outputs can be configured to request either Feed or Fast Feed, or announce setpoint tolerance status. The standard number of setpoints is 4. Eight additional setpoints are available if a multifunction PCB is installed. PAR 2 outputs can also be configured to announce “current scale status” conditions such as:

- Net or Gross Mode
- Gross Zero
- Motion
- Over Capacity
- Under Zero

Refer to Chapter 3 for details on configuring PAR 2 discrete outputs. Outputs are negative-true, open collector type. PAR 2 outputs can be referenced to the 5 volt supply available on the PAR2 connector or can sink up to 35 mA of current and have a maximum voltage of 30 volts DC from an external source. The maximum cable length between the remote device and JAGXTREME terminal is 10 feet (3.04 meters).

PAR 2 Terminal

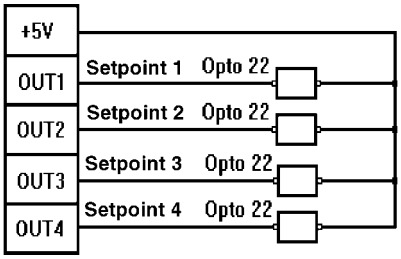
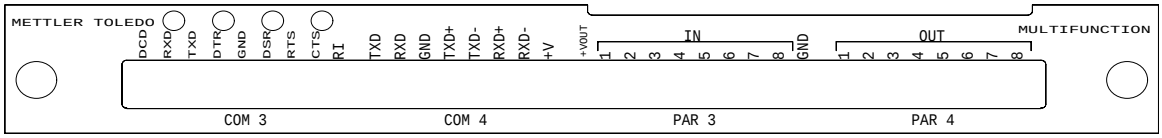


Figure 2-h: Output Wiring Example

Optional Multifunction I/O PCB Serial and Discrete Connections

This section gives proper cable connections to COM 3, COM 4, PAR 3, AND PAR 4, which are located on the optional Multifunction I/O PCB.



COM3 Interconnect Wiring

COM3 supplies all inputs and outputs to allow full handshaking and modem interfacing. The COM3 port is only available with the optional Multifunction PCB. When interfacing COM3 to devices other than those listed for COM2 RS-232, refer to the documentation for the particular device for handshaking needs and suggested wiring.

The following general interconnect options are offered for the 9 and 25 pin connectors.

COM3 With Full Handshaking

COM3	DB25	DB9	DCE
DCD	—	—	
RXD	2	2**	**This connection is only required for devices that input data to the JAGXTREME terminal, such as devices that send ASCII “C, T, P, Z, or U”.
TXD	3	3	
DTR	6	6	
GND	7	5	
DSR	20	4	
RTS	5	8	
CTS	4	7	
RI	—	—	

COM4 Interconnect Wiring

The wiring instructions for the COM2 serial port apply to COM4 on the Multifunction PCB. Refer to the section presented earlier in this chapter entitled COM2/COM4 RS-232 (Controller PCB Serial Port) to interface COM4 to DigiTOL scales and printers.

PAR 3 Discrete Input Port

Each of the eight PAR 3 inputs can be configured for different remote inputs including input from the JAGXTREME keypad (Tare, Clear, Zero, Select, Escape, and Enter). PAR 3 inputs can also be configured for remote print, unit switching, alternate scale selection, or template selection. Polarity (switch to ground or open a ground connection to initiate remote input) can also be selected. Refer to Chapter 3.

The wiring instructions for the PAR 1 discrete inputs apply to PAR 3 on the Multifunction PCB. Refer to the section entitled PAR 1 Input Connections for wiring details.

PAR 4 Discrete Output Port

Each of the eight PAR 4 outputs can be configured to announce Setpoints 1 through 12 coincidence. The 12 setpoint outputs can be configured to request either Feed or Fast Feed, or to announce setpoint tolerance status. PAR 4 outputs can also be configured to announce "current scale status" conditions such as:

- Net or Gross Mode
- Gross Zero
- Motion
- Over Capacity
- Under Zero

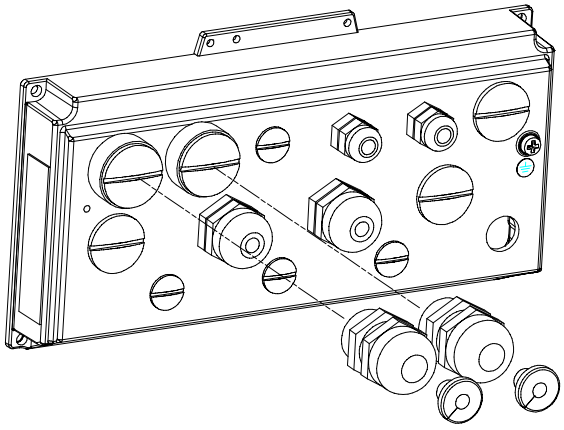
The +VOUT is jumper selectable for +5, +12, or +20 VDC. Polarity output is active at the selected +VDC. Refer to Chapter 3 for details on configuring PAR 4 discrete outputs.

The wiring instructions for the PAR 2 discrete outputs apply to PAR 4 on the Multifunction PCB. Please refer to the section entitled PAR 2 Output Connections for wiring details.

Keyboard and Ethernet Connections

To make keyboard and/or Ethernet connections, refer to the drawing below and follow these steps:

1. Remove the plugs from the back of the JAGXTREME terminal.
2. Remove the cap from the grip bushing assembly (supplied in the shipping kit that accompanies the harsh environment and general purpose JAGXTREME terminals).
3. Route the cable end through the cap of the grip bushing.
4. Route the cable end through the grip bushing.
5. Assemble the bushing to the appropriate hole in the access cover.
6. Plug in the cable to the appropriate port (Ethernet or keyboard) on the JAGXTREME terminal.
7. Reassemble the access cover to the JAGXTREME terminal.
8. Tighten the grip bushing cap to the grip bushing.



JAGXTREME Terminal Jumper and Switch Settings

Jumper and switch settings for the Controller PCB, Analog PCB, and optional Allen-Bradley are described in the following sections.

Controller

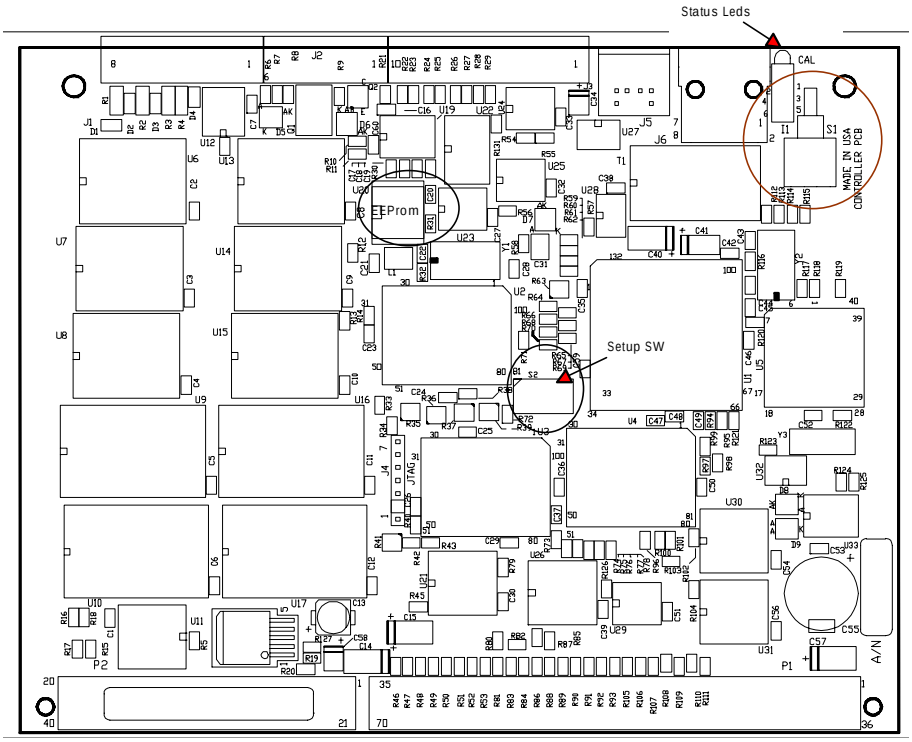


Figure 2-j: Controller PCB

CAL SW Pushbutton is used when new software is downloaded to the JAGXTREME terminal or to perform a Master Reset and to override SW 1 (below) and allow entry to setup.

Setup SW When switch 1 of switch block SW2 is ON, then access will be denied to Setup (also referred to as the Legal-for-Trade jumper). When SW2 is ON, the access to test mode is enabled. This overrides a JagBASIC program that has taken control of the keyboard and keypad.

EEPROM JagBASIC enabled

LED A Indicates that the processor is running

LED LNK indicates that the Ethernet link is established

LED T/R indicates traffic across the Ethernet link

Analog Load Cell

***14093000A**
***14485300A (Reduced Excitation Version)**

U28 on the Analog PCB must be "A" revision or newer to be used with JAGXTREME terminal software versions "C" or newer. Kit 0901-0392 must be ordered to supply U28 in "A" revision or newer to upgrade an existing Analog Load Cell PCB.

Jumpers on the Analog PCB should be set as follows:

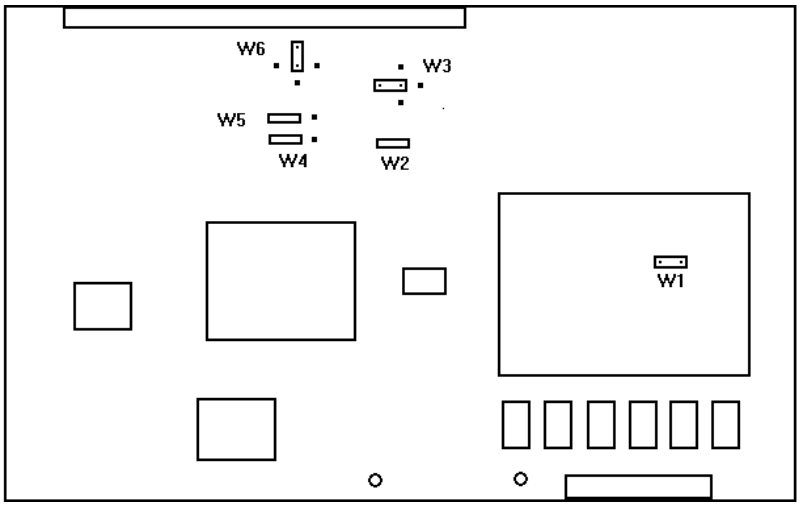


Figure 2-k: Analog Scale PCB

- **W1** should be OFF for 3 mV/V, ON for 2 mV/V. W1 is ON when the jumper is inserted over the two male pins.
- **W2** must be ON.
- **W3** (address) should be positioned to address the specific Analog PCB you are working with. If a single analog scale is used, you must position W3 so you can read the letters B1 under the jumper. If two analog scales are present, address the second Analog PCB as B2 as shown in the following diagram:

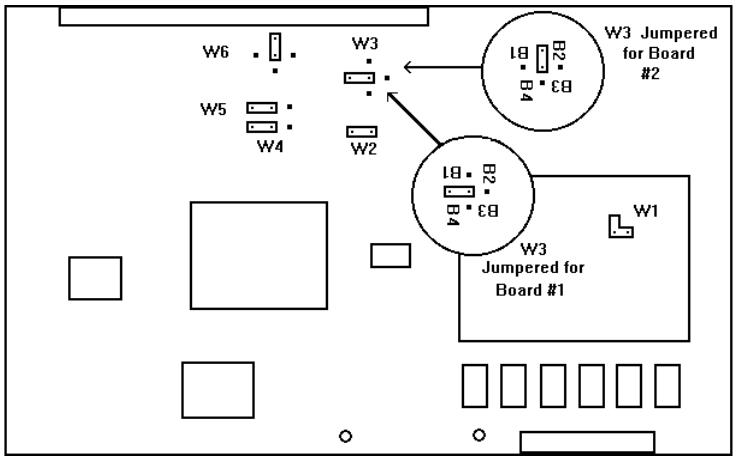


Figure 2-l: Analog Scale PCB — W3 Expanded View

- **W4 and W5** should be set to the jumper over pins 2 and 3.
- **W6** (interrupt) should be positioned as shown so the designation I7 can be read directly above the jumper.
- The Test 1-10 must be left OPEN for normal operation.

Single Channel Analog Load Cell

***15345400A**
***15360200A (Reduced Excitation Version)**

Jumpers on the Single Channel Analog Load Cell PCB should be set as follows:

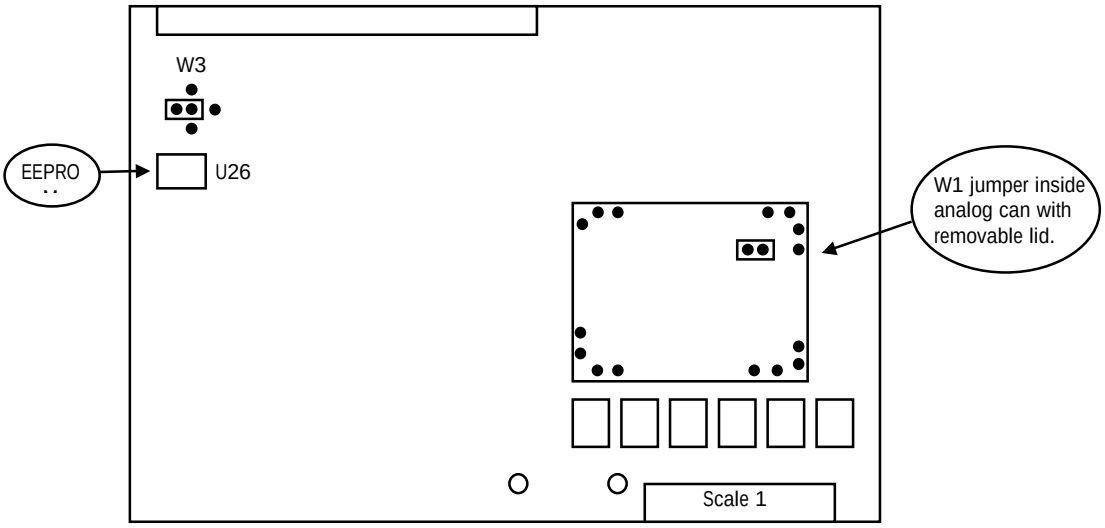


Figure 2-m: Single Channel Analog Load Cell PCB

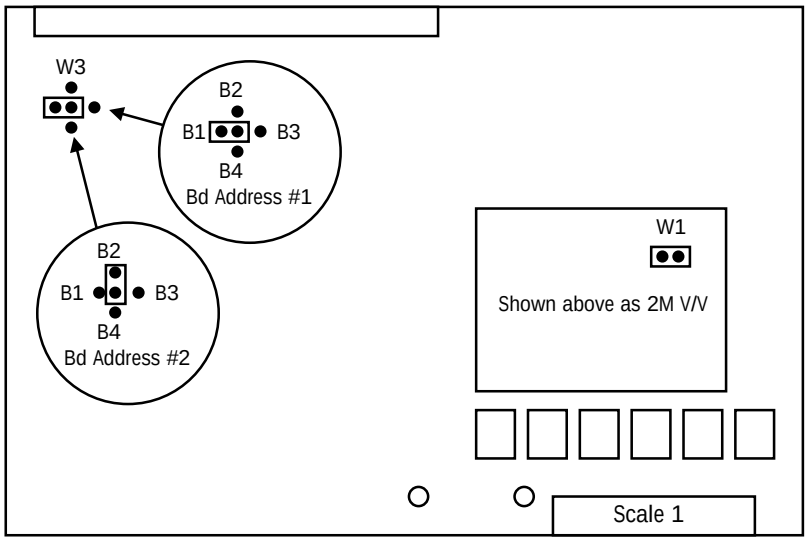


Figure 2-n: Single Channel Analog Load Cell PCB

W1 should be OFF for 3mV/V, ON for 2mV/V. W1 is on when the jumper is inserted over the two male pins.

W3 (Bd Address) should be positioned to address the specific Analog Load Cell PCB you are working with. If a single analog scale is used, you must position W3 so you can read the letters B1 under the jumper. If two analog scales are present, address the second Analog PCB as B2 as shown in the above diagram.

If a dual channel Analog PCB and a single channel PCB are present, address the dual channel Analog PCB as B1 and the single channel Analog PCB as B3.

Dual Channel Analog Load Cell

***15290700A**
***15360100A (Reduced Excitation Version)**

Jumpers on the Dual Channel Analog PCB must be set as follows:

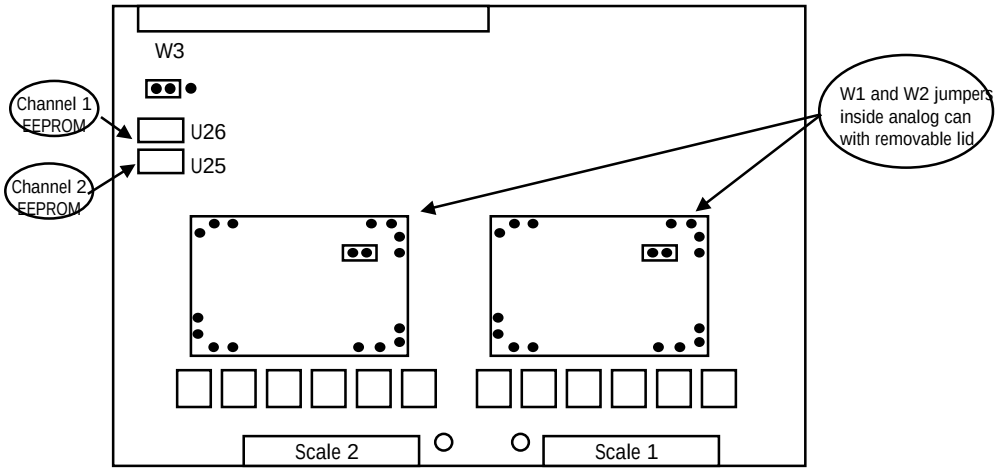


Figure 2-o: Dual Channel Analog Load Cell PCB

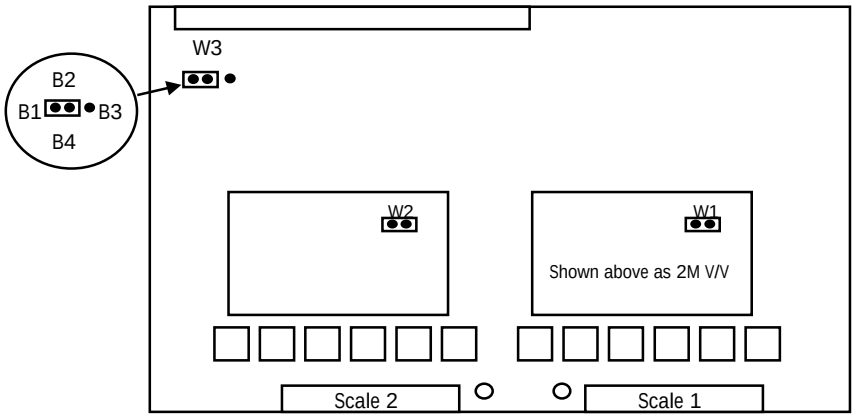


Figure 2-p: Dual Channel Analog Load Cell PCB

W1 should be OFF for 3mV/V, ON for 2mV/V for Scale 1. W1 is on when the jumper is inserted over the two male pins.

W2 should be OFF for 3mV/V, ON for 2mV/V for Scale 2.

W3 (Bd Address) must be positioned so you can read the letters B1under the jumper. No other scale board can be used in the terminal when the Dual Analog PCB is used.

Allen-Bradley RIO PCB

The Allen-Bradley PCB has three jumpers. W2 and W3 must be installed. W1 must be installed in the “I3” position.

Note: If a POWERCELL fails, the weight display will blank.

POWERCELL PCB

Jumpers on the POWERCELL PCB should be set as shown below:

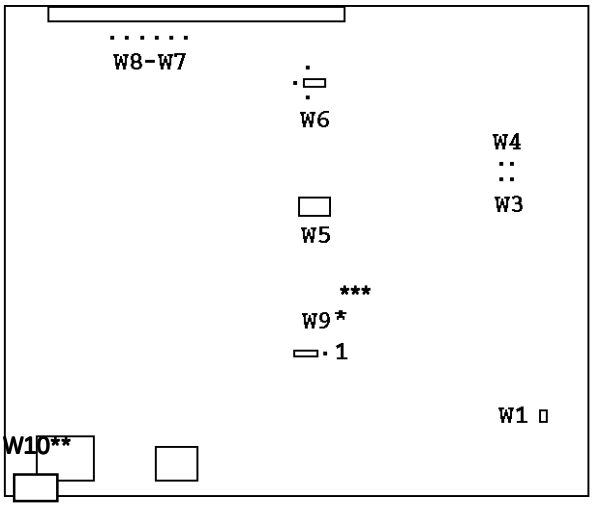


Figure 2-q: POWERCELL PCB

***W9** is shown in the "internal" position meaning that the POWERCELL I/F PCB is using the internal power supply to power the CMOS load cells. If the application contains more than 14 POWERCELLs, an External Power Supply (P/N 0917-0240) must be used.

****W10** is the line termination jumper. It should be set if there is a single homerun cable with the JAGXTREME terminal at the end of the cable.

*** **W5** jumper is removed if you have two scale cards, such as an Analog Card or an MMR (IDNET) Card and the POWERCELL Card. The W5 jumper should be installed on the MMR (IDNET) Card.

MMR (IDNET) PCB

Jumpers on the High Precision Module should be set as follows:

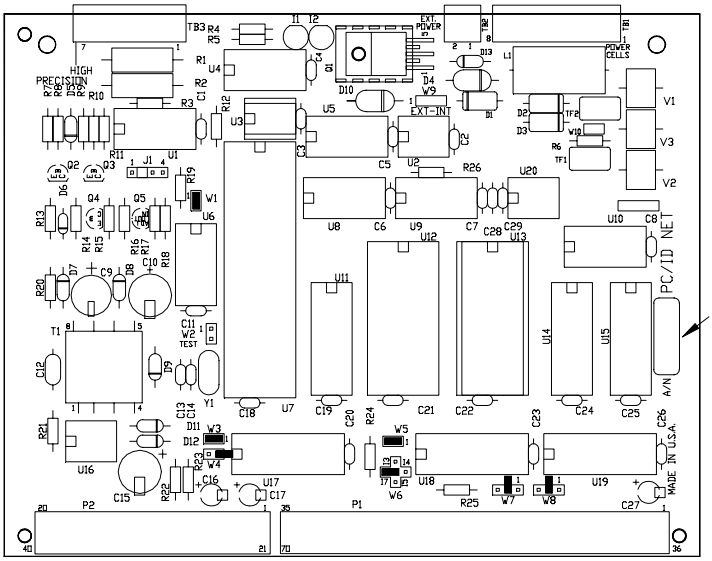


Figure 2-r: MMR (IDNET) PCB

W1 ON
W2 OFF
W3 = ON, W4 = OFF (Scale 1)
W3 = ON, W4 = ON (Scale 2 PCB)
W5 Analog Scale PCB - W3 Jumper in B1 Position W5 =OFF

Only Scale PCB, W5 = ON
Two IDNET PCB's, One Set = ON
One Set = OFF

W6 17 (as shown in PCB drawing)
W7 OFF
W8 OFF

Multifunction I/O PCB

Jumpers on the Multifunction I/O PCB should be set as shown below:

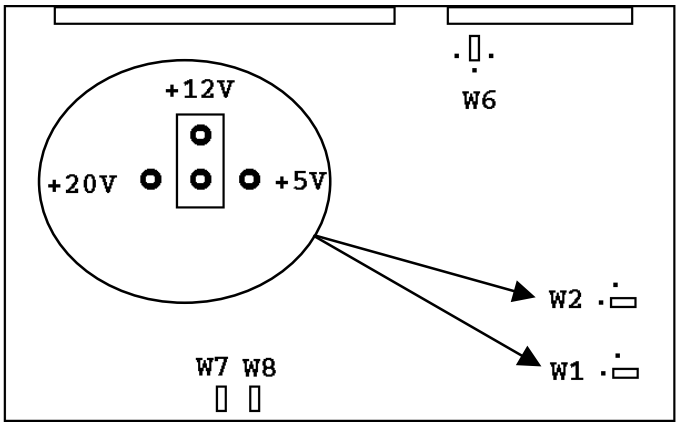


Figure 2-s: Multifunction I/O PCB

W1—must be set for the desired voltage that the selected PAR 3 and PAR 4 parallel outputs will be referenced to through 10 K ohm pull-up resistors resident on the Multifunction PCB. It is also the voltage that will be present on the V OUT terminal of PAR 3. The choices are +5 VDC, +12 VDC, and +20 VDC.

W2—selects the voltage that will be present at the +V terminal of the COM4 Port. The choices are +5 VDC, +12 VDC, and +20 VDC. Select +20 VDC when connecting a DigiTOL scale base to COM4.

W3—ON, test (unused)

W4—OFF

W5—ON, test (unused)

W6—IRQ 4

W7—ON

W8—ON

Installing Options

JAGXTREME terminals may be ordered with options already installed at the factory. Options may also be ordered separately and installed in the field. Remember when installing options that the Controller PCB must always be in the top slot**.** The remaining slots are for optional boards and can be used interchangeably.

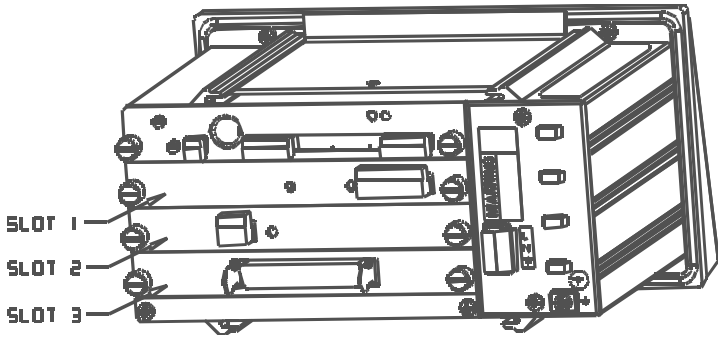


Figure 2-t: JAGXTREME Terminal Option Panel Slots

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DEVICES.

To install JAGXTREME terminal options:

1. Disconnect all power to the terminal

CAUTION

REMOVING OR INSTALLING BOARDS WITH POWER APPLIED MAY RESULT IN DAMAGE TO ALL CIRCUIT BOARDS. REMOVE POWER THEN WAIT FOR AT LEAST 30 SECONDS PRIOR TO REMOVING OR INSTALLING BOARDS.

2. Remove the rear cover of a general-purpose model by removing the four screws securing the cover to the housing. For harsh environment enclosures, remove the front cover as described previously in this chapter.
3. Choose the available slot where the option will be installed, then remove the blank panel assembly by turning the two thumb screws counter-clockwise until the panel assembly comes off.
4. Evenly align the edges of the PCB option board assembly in the grooves on each side of the board slot and slide the board into the JAGXTREME terminal.
5. Gently press the PCB into the open slot with your hand until it is seated.
6. Turn the thumb screws clockwise to secure the panel assembly into the unit. Tighten these with your hand; a tool is not necessary.

It is not necessary to use great force to push the PCB into the slot. Turning the thumb screws will help draw the PCB into its socket.

Apply Power

Following the connection of all external wiring, configuration of circuit board jumpers, and installation and configuration of option boards, power may be applied to the JAGXTREME terminal. Visually inspect the terminal to verify that these steps have been properly carried out, and then apply power

WARNING!

VERIFY POWER, NEUTRAL, AND GROUND WIRES ARE CORRECT AT THEIR SOURCE PRIOR TO APPLYING AC POWER. FAILURE TO DO SO MAY RESULT IN BODILY INJURY.

On general-purpose models, power is applied by plugging the line cord into a properly grounded AC power outlet. On panel or chassis mount models, power is applied by turning on the AC power switch for the power distribution system.

WARNING!

AC POWER SOURCES MUST HAVE PROPER SHORT CIRCUIT AND OVER CURRENT PROTECTION IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL REGULATIONS. FAILURE TO PROVIDE THIS MAY RESULT IN BODILY INJURY.

Power-up Sequence

See Appendix 4 for information on loading software and power-up error messages and actions.

The software revision level is shown in the lower display area during power-up.

The JAGXTREME terminal goes through a series of self-tests when it is turned on. These tests confirm normal terminal operation. The power-up sequence is as follows:

1. All segments of the display windows are lit, verifying operation of all segments. The display shows dashes [---] in the upper display while the terminal performs internal diagnostic self-tests on memory and identifies optional boards that are installed. The terminal also checks the location of setup parameters and memory fields. If these have been moved or changed, an error message will appear before displaying the software part number.
2. After a delay, the terminal displays the software revision level and advances to normal operation mode.
3. Next, the terminal tests communication with the load cell. The terminal displays weight when successful communication is established. If the JAGXTREME terminal is unable to establish communication, an error is displayed.
4. Finally, if enabled, the JAGXTREME terminal power-up timer counts the minutes and seconds remaining before the terminal advances to normal operating mode. Power-up timer configuration is discussed in Chapter 3.

The basic power-up sequence requires approximately 20 seconds. The power-up sequence is analogous to the time required to “boot” a personal computer.

Scale Build Determination

If a standard, recommended scale build is used for your application, you can proceed to Chapter 3: Programming and Calibration. If a nonstandard build is desired or if the analog scale input is used with a mechanical lever system conversion, the minimum increment size for the scale base must be determined before calibration.

Minimum Increment Size for Bench and Portable Single DLC Scale Bases

Consult the DLC Bench Scale Serial Plate or Technical Manual for the capacity and increment size.

POWERCELLs used with the POWERCELLPCB have a minimum allowable increment size of 5 lb. Standard truck scale applications use an increment size of 20 lb (10 kg). If either of these increment sizes differs for legal-for-trade applications using the POWERCELL load cell, you must consult with the presiding government agency.

Minimum Increment Size For Optional Analog Scale Input

The minimum increment size selection for an analog scale input is determined by calculating the microvolts per increment for the desired build.

To calculate the microvolts per increment:

1. Solve the following equation for µV per increment (assumes using a standard analog load cell interface module with a 15 V excitation).

$$\mu V \text{ per Increment} = \frac{\text{Increment Size} \times \text{cell output} \times 15000}{\text{Load Cell Capacity} \times \text{Ratio}}$$

   The increment size, scale capacity, and load cell capacity must all be measured in the same weight units, lb or kg. If the weight units for any of these variables are listed in kg units, multiply by 2.2046 to convert to lb units for the purposes of this calculation. Load cell output is rated in mV/V (millivolts per volt of excitation), marked on load cell data tag. METTLER TOLEDO load cells are typically 2 mV/V. Other load cells can range from 1 mV/V to 4.5 mV/V.

   The load cell capacity is the rated capacity marked on load cell data tag. The ratio is the total number of load cells in the system or the total lever ratio (if scale is a mechanical lever system conversion).

2. Calculate the total number of increments by dividing the calibrated capacity by the increment size.

3. Use the microvolt build table that follows to determine if the µV per increment calculated in step 1 is within the range allowed for the total number of increments calculated in step 2. These parameters have demonstrated stable builds but smaller minimum µV per increment and larger total number of increments are possible.

Microvolt Build Table

Total Number of Increments	Minimum µV per Increment	Maximum µV per Increment	
		2 mV/V	3 mV/V
600	5.0	43.3	63.3
1,000	3.0	26.0	38.0
1,200	2.5	21.7	31.7
1,500	2.0	17.3	25.3
2,000	1.5	13.0	19.0
2,500	1.2	10.4	15.2
3,000	1.0	8.7	12.7
4,000	0.75	6.5	9.5
5,000	0.6	5.2	7.6
6,000	0.5	4.4	6.4
8,000	0.375	3.3	4.8
10,000	0.3	2.6	3.8
12,000	0.25	2.2	3.2
15,000	0.2	1.7	2.5
16,000	0.18	1.6	2.4
20,000	0.15	1.3	1.9
25,000	0.12	1.0	1.5
30,000	0.1	0.87	1.3
32,000	0.1	0.81	1.2
35,000	0.1	0.74	1.1
40,000	0.1	0.65	0.95
45,000	0.1	0.58	0.84
48,000	0.1	0.54	0.80
50,000	0.1	0.52	0.76

The JAGXTREME terminal should never be programmed for less than 0.1 µV per increment. The JAGXTREME terminal CANNOT be calibrated for builds that exceed the maximum µV per increment listed in the microvolt build table.

Sample Calculation

1. Refer to the following example of µV per increment calculation for a Model 2158 floor scale installation.

Scale Capacity	5000 lb
Increment Size	0.5 lb
Load Cell Capacity	2500 lb
Number of Cells	4
Cell Output	2 mV/V
Excitation Voltage	15 VDC

2. Use the formula from step 1 to calculate the µV per increment.

$$\mu V \text{ per Increment: } \frac{0.5 \text{ lb} \times 2 \text{ mV / V} \times 15000}{2500 \text{ lb} \times 4 \text{ load cells}} = 1.5 \ \mu V/\text{inc.}$$

3. Divide scale capacity by increment size to determine total number of increments.

$$\frac{5000 \text{ lb}}{0.5 \text{ lb}} = 10{,}000 \text{ total Increments}$$

4. Check the microvolt build table to see that 1.5 µV per increment build is within the acceptable range for 10,000 increments. It is, so this is an acceptable build.

Seal the Enclosure - Weights and Measures Applications

After setup is complete, most legal-for-trade applications require sealing the enclosure so modifications cannot be made. If the terminal is not used for legal-for-trade applications, skip this section. Make sure SW2-1 (setup access) is ON before sealing the enclosure.

Panel Mount Enclosure

1. Screw one through-hole sealing screw into the hole labeled "CAL" on the rear of the Controller PCB and two more into the threaded holes directly above, below and to the left of the "CAL" opening.
2. Tighten the screws and run a wire seal through the holes in the screw heads.
3. Apply the lead seal.
4. Remove the two top screws near the front of the enclosure one at a time and replace them with special through-hole sealing screws.
5. Screw a third sealing screw into the unused hole adjacent to the right side screw.
6. Run a wire seal through the holes in the heads of the screws.
7. Apply the lead seal.

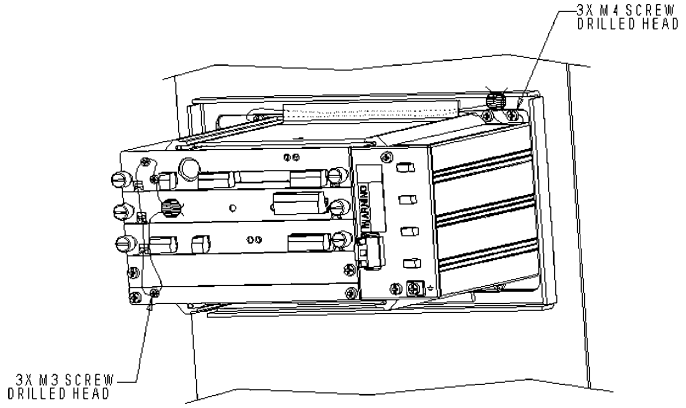


Figure 2-p: Sealing Panel Unit

General Purpose Enclosure

1. Screw a special through-hole sealing screw into all three holes at the top of the rear cover plate.
2. Tighten the screws and run a wire seal through the holes in the heads of the screws.
3. Apply the lead seal.

Harsh Environment Enclosure

1. Sealing holes are located on the left and right sides of the bottom of the enclosure.
2. With the front door firmly seated on the enclosure, run a wire seal through the door and tab holes.
3. Apply the lead seal.
4. Repeat for the opposite side.

3 Programming and Calibration

To program and calibrate the JAGXTREME terminal, you must enter setup mode either from the front panel of your JAGXTREME terminal or via the embedded web server. This chapter provides instructions for programming and calibrating the terminal from the front panel. Please refer to Chapter 4 of this manual if you wish to program and calibrate the JAGXTREME terminal using the embedded web server.

Upon entering setup mode, you will find a series of program blocks that allow you to set the various parameters, which dictate how the terminal will work. (Refer to the chart on page 3-6 for an overview of these program blocks.)

Note: Whether you choose to program the terminal from the front panel or using the embedded web server, you should refer the information in this chapter as it provides important information about each of the program blocks.

General Information

Style Conventions

Throughout this manual, certain style conventions are used to present instructions for programming and calibrating the JAGXTREME terminal.

- Key names are presented in all capital letters.
- Commands are presented in lower case. For example:

  "Press SELECT" means to press the SELECT key on the keypad.

  "Select an option" means to use the SELECT key to display an item, then press ENTER.
- Display prompts are presented in bold type.

Front Panel Display

The JAGXTREME terminal can be programmed using the keypad on the front panel of the terminal. The keypad consists of numeric keys 0 through 9 which contain alphabet characters and symbols, a decimal point (.), a space (SP) and eight function keys containing graphic symbols.

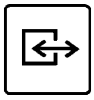
The front panel also contains an upper and lower display. In setup mode, the top display shows the current gross or net weight values with annunciators that indicate the status of the display and the weighing mode (NET or GROSS). The bottom display shows the name of the program block or sub-block or a display prompt requesting an action by the programmer.

Key Functions

The numeric keys are used to input numeric entries such as threshold values and scale capacity. They are also used for alphanumeric entries unless a PC type keyboard is installed.

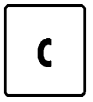
The FUNCTION key is used to enter setup mode and access the program blocks. Depending on the JAGXTREME terminal's setup configuration, the FUNCTION key is also used for Switch Units, Recall Tare, and Recall Gross.

The SELECT key is used to scroll through a list of choices. As the SELECT key is pressed, programming items appear in the lower display area.

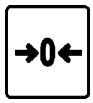


The ENTER key is used to complete a response. Press ENTER after you have used the numeric keys to input data or the SELECT key to display an option.

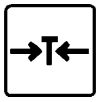
The ESCAPE key is used to exit the current location. The parameters you have configured prior to pressing ESCAPE are saved when you exit. Each time you press ESCAPE, you exit back to the previous level of setup. You may have to press ESCAPE several times to return to a desired location.



Pressing the CLEAR key clears the last character of a response and allows you to re-key the response. This is similar to the backspace key on a computer keyboard.



Pressing the ZERO allows you to back up in the current program block and return to the previous step if you are in the first two levels of setup. The ZERO key does not function when you are beyond the second level in setup.



The TARE key is not used in setup mode. In normal operating mode, it is used to perform a pushbutton tare if that function is enabled in setup.

The MEMORY key is not used in setup mode. In normal operating mode, it is used to access various memory functions, depending on the JAGXTREME terminal's setup configuration, including Prompt List, Consecutive Number, Enter Setpoint, Time, and Date.

Accessing Setup

The JAGXTREME terminal is shipped from the factory with the legal-for-trade switch (S2-1) set in the 'OFF' position. Upon powering up the terminal, you should be able to directly enter setup mode.

1. Plug the terminal in. It will go through a power-up sequence during which time the display will first read **METTLER TOLEDO,** followed by the software number, and then **lb GROSS** on the bottom display and **0.000** on the top.
2. Press the FUNCTION key then the SELECT key until **Enter Setup?** is displayed.
3. Press ENTER. The first program block, **Scale Interface**, should be displayed.

Note: Use anti-static protection straps whenever touching electronics boards.

If the **Enter Setup?** prompt is not displayed, try the following steps:

- Remove AC power.
- Remove the controller board and set S2-1 to the off position, or
- Push in CAL switch while entering setup.
- Replace the controller board.
- Apply power to the terminal and repeat steps 1 and 2.

4. Once **Scale Interface** is displayed, press ENTER to open this block or press SELECT to move to the next program block.

Navigating

To move through the various program blocks and sub-blocks:

1. Press SELECT to scroll through the program blocks. When the desired block is displayed, press ENTER to open it.
2. Program blocks contain sub-blocks that handle specific areas of functionality. Once you are in a program block, press the SELECT key to move through the sub-blocks. Use the ENTER key to confirm your parameter option selection in the sub-blocks.
3. After configuring a sub-block, the terminal proceeds to the next sub-block. When you finish configuring the last sub-block in a program block, the terminal proceeds to the next program block. Continue through each program block until you have finished configuring each one.
4. To return to normal operation after configuring the parameters in each sub-block, press ESCAPE several times until the prompt **Exit Setup?** is displayed.
5. Press ENTER to confirm that you want to exit setup mode. If you do not wish to exit, press SELECT to choose another program block within setup mode.
6. To protect the setup parameters from being changed once you have configured them, power-down the terminal and install the W3 jumper on the Controller board.

You can exit your position within a program block by pressing ESCAPE at any time. You may need to press ESCAPE several times to exit setup mode and continue to normal operation.

Arrows in the upper display indicate your position within a program block. The following chart describes the arrows relative to block position.

Arrows		Block Position
1 Arrow	τ	You are in Setup Mode, top level.
2 Arrows	ττ	You are in a Program Block.
3 Arrows	ττττ	You are in a sub-block.
4 Arrows	τττττ	You are configuring an element within a sub-block.

Audible Messages

The JAGXTREME terminal has a system of audible beeps that give immediate feedback for each keystroke and terminal response. The beeps indicate that the terminal registered a keystroke and whether or not the function associated with the keystroke is valid.

The audible messages can be programmed ON or OFF in setup. The terminal is programmed at the factory with the audible messages OFF and the alarm beeps ON.

Refer to the section on programming the Application Environment program block for instructions on enabling and disabling the beeper.

The JAGXTREME terminal's coded beeps are as follows:

Beep Description	Indication
One short beep	A key has been pressed and recognized
One long beep	The keystroke(s) you have entered are invalid
Three quick beeps	The entry is acknowledged and function is performed

Reset to Factory

.

The last sub-block in each program block is Reset to Factory. Selecting **Y(es)** at the **Reset to Factory?** prompt returns all parameters in the current block to the original factory settings. NOTE: You cannot reset a single value or specify only a few of the sub-block values. Using the reset option is the same for all program blocks except Diagnostics.

The Diagnostics block has a Master Reset option that lets you reset all parameters in all blocks, including or excluding the Scale Interface program block. Refer to the section entitled Diagnostics Program Block at the end of this chapter. The default values for all program block parameters are listed in the appendix.

To reset the program block parameters:

1. Press ENTER at the **Reset to Factory** prompt. The terminal responds with the prompt **Are You Sure?**
2. Press SELECT to display **Y(es)** to confirm that you want to reset the terminal to the original factor settings. Press ESCAPE to exit the sub-block.
3. Press SELECT to continue to the next program block. Use caution when resetting the values for the Scale Interface program block as all calibration values will be reset.

Configuring JAGXTREME Terminals With Multiple Scales and a Summing Scale

If two scales are single channel analog scales, make sure that the board address jumper (W3) for the second is set for B2 (Board 2).

If both scales are MMR (IDNET) scales, make sure that the board address jumper (W4) for the second scale is installed. The (W5) jumper is removed on the second scale card.

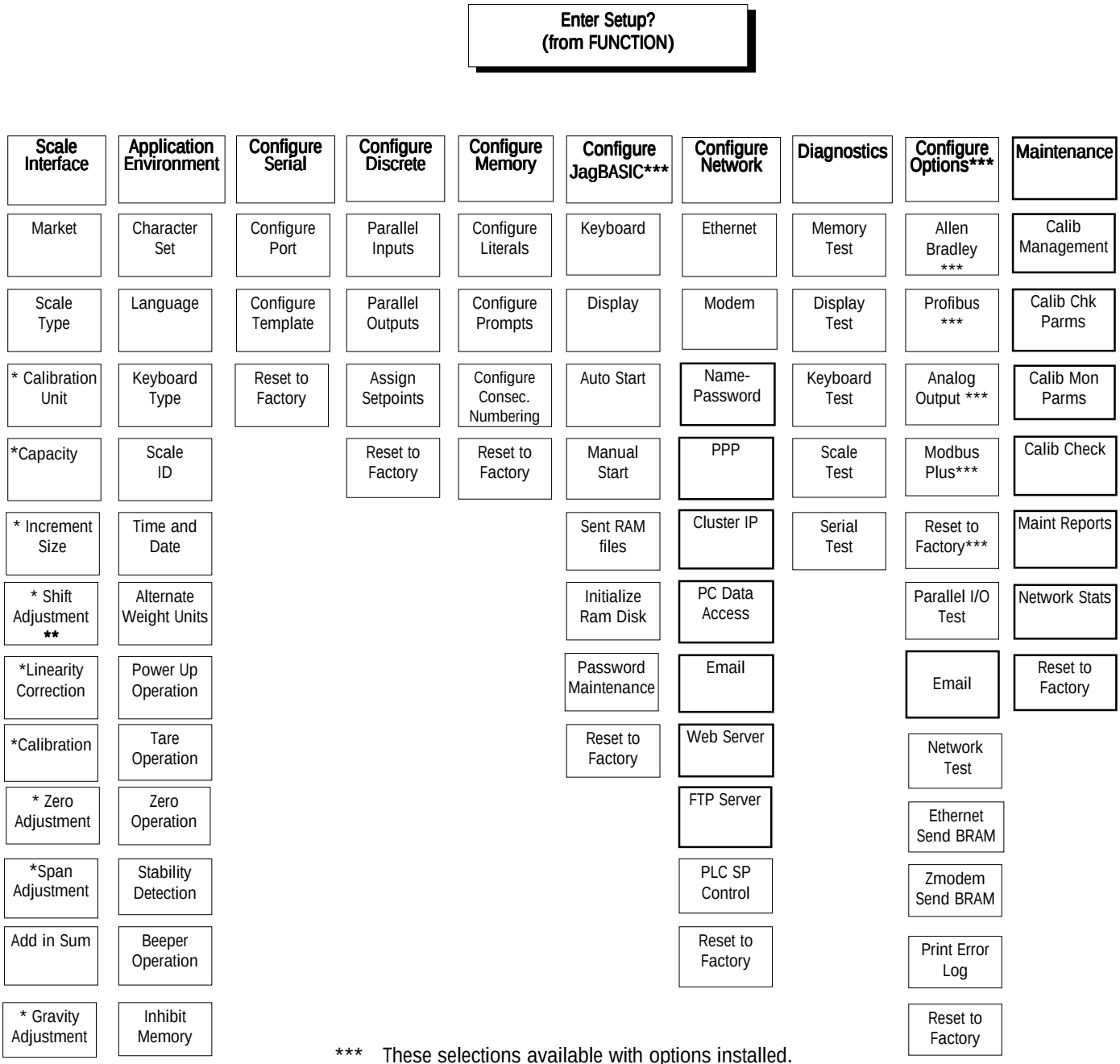
A JAGXTREME terminal can operate with one, two, three or four scales connected. It is possible to combine analog and DigiTOL scales. The JAGXTREME terminal is programmed for multiple-scale operation as follows:

1. Determine which scale is currently displayed. The cursor beneath the lower display will indicate which scale is selected. If a JAGXTREME terminal was previously programmed as a one-scale terminal, scale A should be displayed.
2. Enter setup mode and access the Scale Interface program block for scale A. Configure the **# INTRNL SCLS** parameter in the Scale Type sub-block as 1, 2, 3, 4 or 5, depending on how many scales you will be using. This allows you to select the next scale (Scale B) from the home position (outside setup mode) and another scale as a summing scale.
3. Finish configuring and calibrating scale A. (Make sure **Add in Sum Y** is selected for a summing scale.)
4. After calibrating scale A, exit from setup.

5. From the home position, press SELECT until scale B appears in the lower display. Press ENTER to select scale B. The upper display will show weight from scale B. If no previous calibration exists for scale B, the upper display will show dashes.
6. Configure and calibrate scale B. Do not change the parameter # INTRNL SCLS back to 1. Make sure Add in Sum Y is selected for a summing scale.
7. Exit setup.
8. From the home position, press SELECT until the third scale is displayed in the lower display. Press ENTER to select scale. The upper display will show dashes.
9. Configure the third scale as the summing scale (select “summing” as scale type) if you are only using two scales. Otherwise, configure the remaining scales, configuring the last one as the summing scale (select ‘summing” as scale type.)
10. Exit setup. You can now select scale A, B, C, D or the summing scale.

Program Block Overview

The following chart shows the various program blocks and sub-blocks. Instructions for configuring each follow.



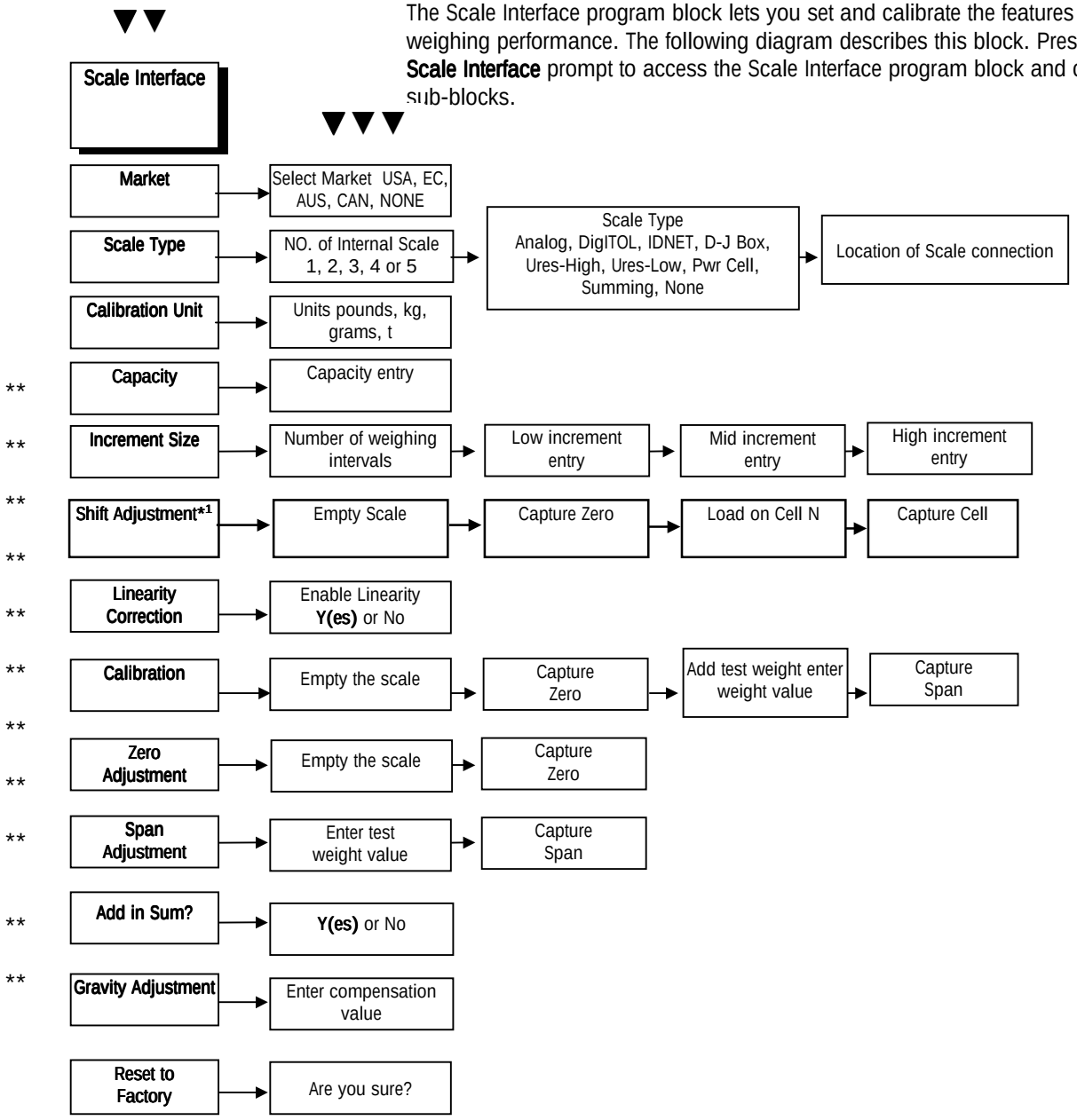
*** These selections available with options installed.

** Multiple load cell scales only.

* These menu selections are replaced by “Service Mode” and its associated menu when Scale Type = High Precision.

Scale Interface Program Block

The Scale Interface program block lets you set and calibrate the features that affect weighing performance. The following diagram describes this block. Press ENTER at the **Scale Interface** prompt to access the Scale Interface program block and configure the sub-blocks.

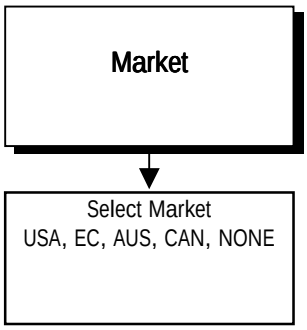


*Multiple Load Cell Scales Only.

**These menu selections are replaced by “Servicemode” and its associated menu when Scale Type = High Precision.

1 Appears only if DigiTOL J-Box or POWERCELL selected in Scale Type sub-block.

1. Market Sub-block

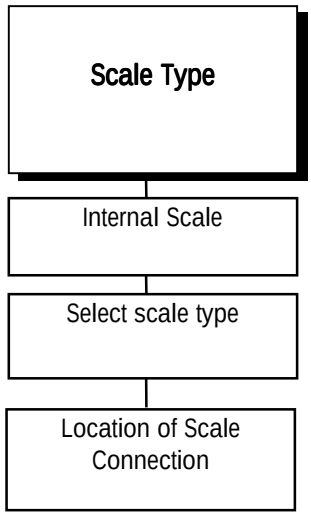


You can exit the setup mode any time during configuration. You may need to press ESCAPE several times to return to the **EXIT Setup?** prompt, then press ENTER.

The JAGXTREME terminal is factory set for the market you specified when you ordered the terminal. The Market sub-block lets you select a new country or market area and limit parameters that affect legal-for-trade programming options.

1. Press ENTER at the **Market?** prompt to access this sub-block.
2. Press SELECT until the desired market area is displayed, then press ENTER. Market areas include:
   - USA—United States
   - EC—European Community
   - AUS—Australia
   - CAN—Canada
   - NONE—disables legal-for-trade option
3. Continue to the next sub-block, or press ESCAPE twice to exit the setup mode.

2. Scale Type Sub-block



JAGXTREME terminals with a single analog scale must use Board #1 (BD1). When the board is selected. The JAGXTREME terminal proceeds to the next sub-block.

The Scale Type sub-block prompts you for the number of internal scales and type of scale that will be used.

1. Press ENTER at the **Scale Type** prompt to open the sub-block.
2. At the **# Intrnl Scls?** prompt, select the number of internal scales. Choose 1, 2, 3 or 4, (or 5 if a summing scale is desired), depending on the number of scales connected to the JAGXTREME terminal.

   When configuring terminals with two or more scales, select the first scale (A) to calibrate by pressing SELECT (not in setup mode), then enter setup and calibrate scale A. To calibrate the second scale you must exit setup mode, select the second scale (B) with the SELECT key, then reenter setup and calibrate scale B. Follow the same procedure for any additional scales.
3. Press SELECT at the **Type?** prompt until the desired scale type is displayed, then press ENTER. Scale types include:
   - Analog
   - DigiTOL (bench or portable)
   - DigiTOL Junction Box (J-Box)
   - UltraRes High
   - UltraRes Low
   - POWERCELL
   - High Precision (MMR/IDNET)
   - None
   - Summing

If Analog is Selected

Select board #1 (BD1) or board #2 (BD2), depending on the address of the Analog PCB connected to the scale. Jumper W3 on the Analog PCB determines the board address. If two analog PCBs are installed, they must have different board addresses. If two dual analog cards are installed, you may also select board #3 and board #4.

If DigiTOL, UltraRes High, or UltraRes Low is Selected

1. Select the Controller PCB COM port where the scale is connected.
2. Select COM2 or COM4 (if installed) then press ENTER. When the COM port is selected, the JAGXTREME terminal exits the setup mode and goes through the power up sequence. You must reenter setup mode to continue configuring the program blocks.

If DigiTOL J-Box is Selected

1. Select the Controller PCB COM port where the scale is connected. Select COM2 or COM4 (if installed) then press ENTER. When the COM port is selected, the JAGXTREME terminal exits the setup mode and goes through the power up sequence. You must reenter setup mode to continue configuring the program blocks.
2. At the **# Load Cells?** prompt, enter the number of load cells connected to the J-Box. (1, 2, 3, or 4).

If POWERCELL is Selected

For example, if scale A of a two-scale JAGXTREME terminal has 6 cells and Scale B has 8 cells, Scale A would be addressed as 1 through 6. Scale B cells would be addressed as 31 through 38.

1. At the **Loc? prompt**, select the address of the scale's first cell.
2. To address the cells of a single scale or Scale A, select **PwrCell #1.** To configure cells of the second scale (Scale B), select **PwrCell #31.** To configure cells of the third scale (Scale C), select **PwrCell#6**. To configure cells of the fourth scale (Scale D), select **PwrCell #91.** You must configure each scale of a two-scale JAGXTREME terminal separately.
3. At the **# Load Cells?** prompt, use the numeric keys to enter the number of load cells in the scale you are configuring.
4. At the **Shift by?** prompt, select to perform the shift procedure by single load cells or by pairs of cells (by section). Select **Cells** if there is an odd number of load cells.
5. You must address the individual POWERCELLs through the Diagnostics program block. Proceed to the section entitled Scale Test sub-block in the Diagnostics program block.

If IDNET is Selected

At the **Service Mode** prompt, you may enter the service mode for the understructure.

1. Press SELECT to choose between **Y(es)** and **N(o),** allowing entry into the service mode or to quit without changing any parameters.
2. When the appropriate response is displayed, press ENTER to accept the choice.

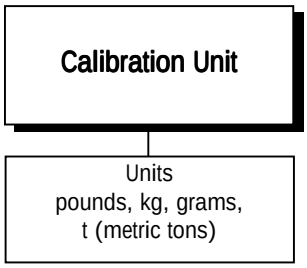
If you choose to enter service mode, the sequence of operation follows the normal calibration sequence for an ID terminal. This is different from other scale types. If you are not entering service mode, the display will continue as described below.

Note: This selection is provided only for Scale E, the summation scale.

If Summing is Selected

1. No other parameters are entered in this sub-block. In the capacity sub-block, enter the total capacity of the summed scales. This value can be less than the total capacities of the individual scales. For a legal-for-trade summed scale, the calibration units and increment size should be identical for all scales.
2. Continue to the next sub-block or exit the setup mode.

3. Calibration Unit Sub-block



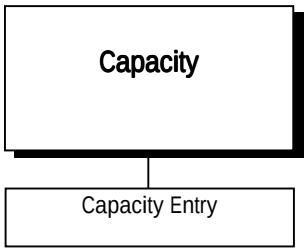
This sub-block lets you enter the units of measure to use when calibrating the scale and configuring capacity and increment size. Recalibration is required if you change the calibration unit.

1. Press ENTER at the **Calibration Unit** prompt to open the sub-block.
2. At the **Units?** prompt, press SELECT until the desired calibration unit is displayed, then press ENTER.

   Calibration units include:

   - Pounds
   - Kilograms
   - Grams
   - Metric Tons
3. Choices are limited to the current settings for the primary and secondary weight units specified in the Application Environment program block.
4. Continue to the next sub-block or press ESCAPE to exit the setup mode.

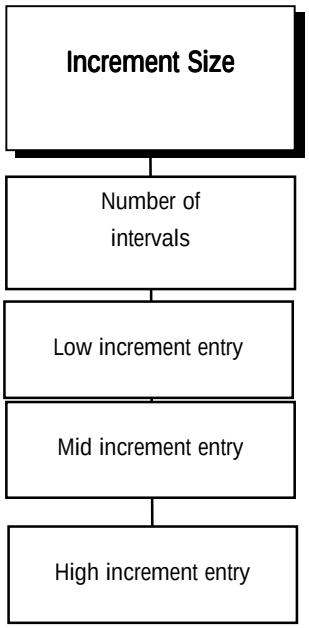
4. Capacity Sub-block



The Capacity sub-block lets you enter the maximum scale capacity. The capacity is given in the calibration units.

1. Press ENTER at the **Capacity** prompt to open the sub-block.
2. At the **Wgt?** prompt, input the desired scale capacity using the numeric keys.
3. Press ENTER to set the capacity.
4. Continue to the next sub-block or exit the setup mode.

5. Increment Size Sub-block



This sub-block lets you specify the increment size for one or more weighing intervals. Increment size is the smallest change in weight value that the terminal is able to display. For example, if the increment size is specified as 0.1 then, starting at 0.0 on the scale, adding an increasing load will cause the terminal to display 0.1, 0.2, 0.3 and so on through the entire weighing range of the scale.

If two or three intervals are selected, the operation is as described above except that two or three increments are now used over portions of the weighing range. For example, consider a scale configured for two intervals with the low increment specified as 0.1 and the high increment as 0.2. The scale displays weight by 0.1 increments through the first interval until the weight reaches the "low to high" (LoHi) threshold point, then by 0.2 increments through the second interval to capacity. Increments may count by 1, 2, or 5.

There are two types of multiple increment size operation. Multiple range weighing applies to all scale bases except METTLER TOLEDO's high precision bases. Multi-interval weighing applies only to METTLER TOLEDO's high precision bases. The JAGXTREME terminal will determine which type of operation to use according to the scale type selected in setup.

To configure the increment size:

1. Press ENTER at the **Increment Size** prompt to open the sub-block.
2. At the **Nbr of Intvls?** prompt, use the SELECT key to choose 1, 2 or 3 intervals.

If 1 Interval Selected

At the **Low?** prompt, enter the low increment size (0.00001-100).

If 2 Intervals Selected

1. At the **Low?** prompt, enter the low increment size (0.00001-100).
2. At the **High?** prompt, enter the high increment size (0.00001-100). The high increment must be greater than the low increment.
3. At the **LoHi?** prompt, enter the weight value where the scale will switch from the low increment to the high increment.

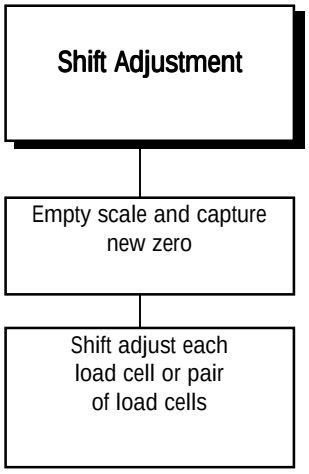
If 3 Intervals Selected

1. At the **Low?** prompt, enter the low increment size (0.00001-100).
2. At the **Mid?** prompt, enter the mid increment size (0.00001-100). The mid increment must be greater than the low increment.
3. At the **High?** prompt, enter the high increment size (0.00001-100). The high increment must be greater than the mid increment.
4. At the **LoMid?** prompt, enter the weight value where the scale will switch from the low increment to the mid increment.
5. At the **MidHi?** prompt, enter the weight value where the scale will switch from the mid increment to the high increment. The MidHi threshold must be higher than the LoMid threshold.
6. Continue to the next sub-block or exit the setup mode.

Note: W1, W2, and W3 on the display reflect the active weighing intervals in a multiranging configuration.

With a single weighing range configuration, the W1, W2, and W3 cursors are not used.

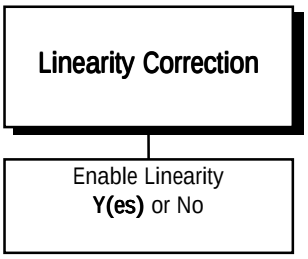
6. Shift Adjustment Sub-block



The Shift Adjustment sub-block lets you adjust multiple load cells connected to a DigiTOL J-Box or POWERCELL scale. NOTE: It only appears if you selected DigiTOL J-Box or POWERCELL in the Scale Type sub-block.

1. Press ENTER at the **Shift Adjustment** prompt to open the sub-block.
2. At the **Empty the Scale** prompt, remove any weight on the platform, then press ENTER. The display reads **Capturing Zero** as the terminal captures zero.
3. At the **Load On Cell N** or **Load On Pair N** prompt, place a test weight on the platform that weighs approximately 50% of the scale's capacity. The JAGXTREME terminal automatically shift adjusts the scale for the current load cell as the display reads **Capturing Cell N** or **Capturing Pair N**.
4. Repeat steps 2 and 3 for each load cell/pair connected to the DigiTOL J-Box or POWERCELL.
5. When all load cells are shift adjusted, the terminal indicates **Shift Complete**. Continue to the next sub-block or exit the setup mode.

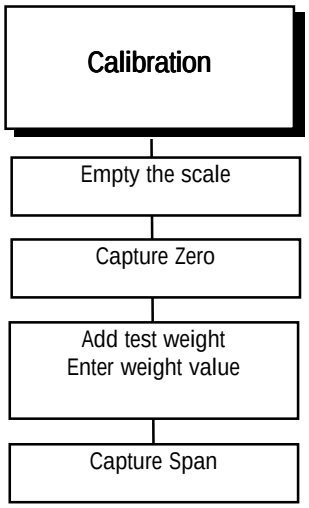
7. Linearity Correction Sub-block



Linearity correction lets you calibrate the scale using reference weights at mid-scale and full-scale ranges. Linearity correction allows for compensation of the non-linear performance of a load cell(s) or weighing system. If linearity correction is enabled, the calibration process requires additional steps. The terminal must be calibrated or recalibrated **after** you enable linearity correction.

1. Press ENTER at the **Linearity Corr** prompt to open the sub-block.
2. Select **Y(es)** to enable or **N(o)** to disable linearity correction. Continue to the next sub-block or exit the setup mode.

8. Calibration Sub-block



Calibration involves emptying the scale then placing a known test weight on an empty platform and allowing the JAGXTREME terminal to capture values for zero and span. You can calibrate a scale with or without linearity correction. The JAGXTREME terminal prompts you through the calibration.

If you are calibrating two internal scales, you must have two scales selected (Scale Type sub-block), then exit the setup mode after the first scale is calibrated. After exiting, select the second scale. Finally, enter setup mode to calibrate and set the other parameters associated with the scale.

Without Linearity Correction

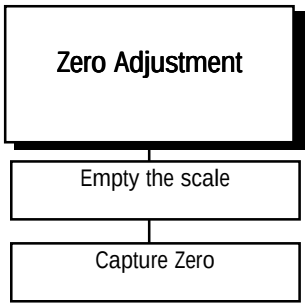
1. Press ENTER at the **Calibration** prompt to open the sub-block.
2. At the **Empty the Scale** prompt, remove any weight on the platform, then press ENTER. The terminal automatically captures zero and the cursor moves across the lower display indicating the operation is in progress.
3. At the **Add Test Weight** prompt, place on the platform a test weight equaling the scale's capacity or another practical weight. Press ENTER.
4. A minimum of 20% of scale capacity is necessary for calibration; METTLER TOLEDO recommends 60 to 100%. A calibration error will result if insufficient weight is used.

5. At the **Wgt?** prompt, input the amount of weight you added in step 3. Press ENTER. The terminal automatically captures span and the cursor moves across the lower display indicating the operation is in progress.
6. When the display reads **Calibration Successful**, continue to the next sub-block or exit the setup mode.

With Linearity Correction Enabled

1. Press ENTER at the **Calibration** prompt to open the sub-block.
2. At the **Empty the Scale** prompt, remove any weight on the platform then press ENTER. The terminal automatically captures zero and the cursor moves across the lower display indicating the operation is in progress.
3. At the Add **MidScale Wgt** prompt, place a weight on the platform equaling between 35% and 65% of the scale's capacity.
4. At the **Wgt?** prompt, input the amount of weight you added in step 3. Press ENTER. The terminal automatically captures mid-scale.
5. At the Add **FulScale Wgt** prompt, place weight on the platform equaling at least 90% of scale capacity or as much as is practical. Press ENTER.
6. At the **Wgt?** prompt, input the amount of weight you added in step 5. Press ENTER. The terminal automatically captures full scale and the cursor moves across the lower display indicating the operation is in progress.
7. When the terminal indicates **Calibration Successful**, press ENTER.
8. Continue to the next sub-block or exit the setup mode.

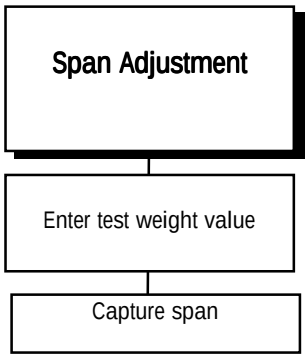
9. Zero Adjustment Sub-block



The zero value is the scale-empty reference as determined during calibration. The Zero Adjustment block lets you re-establish this value to compensate for any change since the last calibration. The scale must be empty before resetting the zero value.

1. Press ENTER at the **Zero Adjust** prompt to open the sub-block.
2. At the **Empty the Scale** prompt, remove any weight on the platform and press ENTER. The terminal automatically captures zero and displays the message **Zero Adjusted** when finished.
3. Continue to the next sub-block or exit the setup mode.

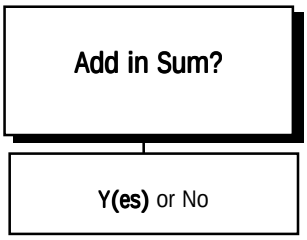
10. Span Adjustment Sub-block



The Span Adjustment sub-block lets you make minor span adjustments without completely recalibrating the scale.

1. Place a test weight on the platform and press ENTER at the **Span Adjust** prompt to open the sub-block.
2. At the **Add Test Weight** prompt, enter the amount of weight placed on the platform in step 1.
3. The terminal captures the new span. When finished the terminal displays the message **Span Adjusted**.
4. Continue to the next sub-block or exit the setup mode.

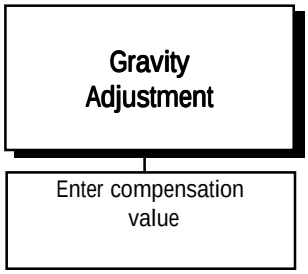
11. Add in Sum



This sub-block allows you to include the selected scale's weight in the summing scale.

1. Select **Y(es)** to include the scale in the sum.
2. Select **N(o)** to exclude the scale from the sum.

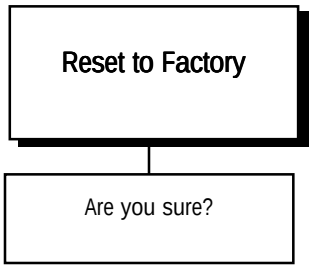
12. Gravity Adjustment Sub-block



This sub-block allows you to enter a factor to compensate for gravitational differences between the factory calibration location and where the scale is currently located. If on-site calibration has already been performed, leave this value set to the factory default. When you access the **Gravity Adjust** sub-block, the current value is displayed.

1. Press ENTER at the **Gravity Adjust** prompt to open the sub-block. The display reads **Geo Val?** and shows the current adjustment value.
2. Press ENTER to accept the current factor or to enter a new gravitational factor. Use the GEO table in the appendix to determine the appropriate constant.
3. Return to the first sub-block or exit setup mode.

13. Reset to Factory Sub-block



Reset to Factory returns all parameters in the current block to the original factory settings.

1. Select **Y(es)** to return all parameters to the original factory settings.
2. Select **N(o)** to retain the new parameters.

Service Mode for MMR (IDNET) Bases

The service mode for K weighing platforms is used for:

- Input of parameters specific to the weighing platform after replacement of the measuring cell
- Calibration of the base with the calibration weight built into the measuring cell or externally by loading the base with the required weights
- Adjustment of linearity
- Resetting of the measuring cell parameters to the factory setting
- Clearing of a previously assigned scale number.

An MMR (IDNET) base can generate three different types of communications errors and a general function failure indication during Service Mode operation. These types are identified in Chapter 5. These may be cleared by pressing the ENTER or ESCAPE keys.

NATION Program Sub-block

This program sub-block allows the selection of the country of use, which sets the certification regulations for that country. Use the SELECT key to display the various country codes. The codes and country names are listed in the table shown below

Code	Country	Code	Country	Code	Country
A	Austria	AS	Saudi Arabia	AUS	Australia
B	Belgium	BR	Brazil	CDN	Canada
CH	Switzerland	D	Federal Republic of Germany	DK	Denmark
E	Spain	ET	Egypt	F	France
FL	Liechtenstein	GB	Great Britain	GR	Greece
HK	Hong Kong	I	Italy	IL	Israel
IND	India	IRL	Ireland	IS	Iceland
J	Japan	JOR	Jordan	KWT	Kuwait
L	Luxembourg	MAL	Malaysia	MEX	Mexico
N	Norway	NL	Netherlands	NZ	New Zealand
P	Portugal	RA	Argentina	RC	Taiwan
RCH	Chile	S	Sweden	SF	Finland
SGP	Singapore	SUD	Sudan	T	Thailand
TJ	China	USA	United States	YU	Yugoslavia
ZA	South Africa	ZK	South Korea		

When the appropriate country code is displayed, press ENTER to accept the choice.

RESET Program Sub-block

In this program sub-block, the certification capability, maximum capacity, range and graduation size can be reset to the factory default settings.

1. To reset the parameters to factory default, press SELECT until the display shows **Y(es).**
2. Press ENTER. The display will show **NO RES**.

3. To exit this sub-block, press ENTER. To reset the parameters, press SELECT until the display shows an **N(o)**. Press ENTER. The display will then show **RES ALL Y**.
4. Press ENTER to confirm your choice. If you wish to exit without resetting the parameters, press SELECT then ENTER.
5. If you have chosen to reset to factory defaults, **POWER OFF** appears in the display. The JAGXTREME terminal must be powered down and then power reapplied.
6. The base will be calibrated internally, and the weighing platform will be assigned a new scale number.

SCALE PARAMETERS Program Sub-block

The display shows **SCALE**, allowing you to set certification capability, maximum capacity, range, and graduation.

1. With **Y(es)** displayed, press ENTER.
2. The display shows **NO APPR** to allow selecting the scale for a non-certified mode of operation. Use the SELECT key to change to **APPR**, then confirm your choice by pressing ENTER.
3. The various types of K bases are displayed using the SELECT key. When the appropriate base model number appears in the display, use the ENTER key to select that choice.
4. The display shows **CAP xxx kg**, indicating the maximum capacity of the selected weighing platform. The maximum capacity at which the scale operates is selectable in three stages (full, half, or quarter). Depending on the country selected in the NATION sub-block, the capacity may be displayed in pounds. Press SELECT to step through the capacity choices. Press ENTER to choose the displayed answer.
5. The readability of the base can be set using the SELECT key. When the display shows **MR**, the display shows the display readability of the first range of a multirange scale. When the display shows **D**, the displayed accuracy of a single range base is shown.

LINEARITY Program Sub-block

After a measuring cell is replaced, or the stored linearity code is changed, it must be re-entered. The linearity code is located at the rear of the identcode bracket.

1. The display shows **LINEA**. Press ENTER to enter this sub-block.
2. The display indicates the current stored value **LINEA +XXXX.**
3. Choose the sign of the linearity code by using the SELECT key. When the proper sign is displayed, use the ENTER key to confirm your choice.
4. Enter the linearity code using a combination of the SELECT key and the ENTER key. The ENTER key will insert zeros in place of the dashes.
5. The SELECT key is used to increment the right-most zero to the desired number. When the displayed value is correct, press ENTER.

CALIBRATION Program Sub-block

This program sub-block is used to calibrate the scale.

1. The display shows **PRELOAD**. Empty the scale. If a vessel or other container is to be included, place this on the weighing platform. Press ENTER. The display shows **CALIB**, and internally calibrates.
2. The display shows **CAL EXT**. If calibration using test weights is desired, press ENTER. To go on to internal calibration, press SELECT.
3. If external calibration has been selected, the display shows **FULL CAP**. Press ENTER to calibrate using test weights equal to the maximum capacity of the base. Press SELECT to use the selected capacity of the base. Press SELECT again to enter a calibration weight other than the preset values. Enter the test weight value using a combination of the SELECT key and the ENTER key as follows:
   - Press the ENTER key to insert zeros from right to left.
   - Press the SELECT key to increment the required position.
4. When the desired weight value is displayed, place the corresponding test weights on the platform and press ENTER.
5. The base completes the calibration process with the test weight. The display then shows **UNLOAD**. Remove the test weight. The base re-establishes the zero value when you press ENTER.

SAVE PARAMETERS Program Sub-block

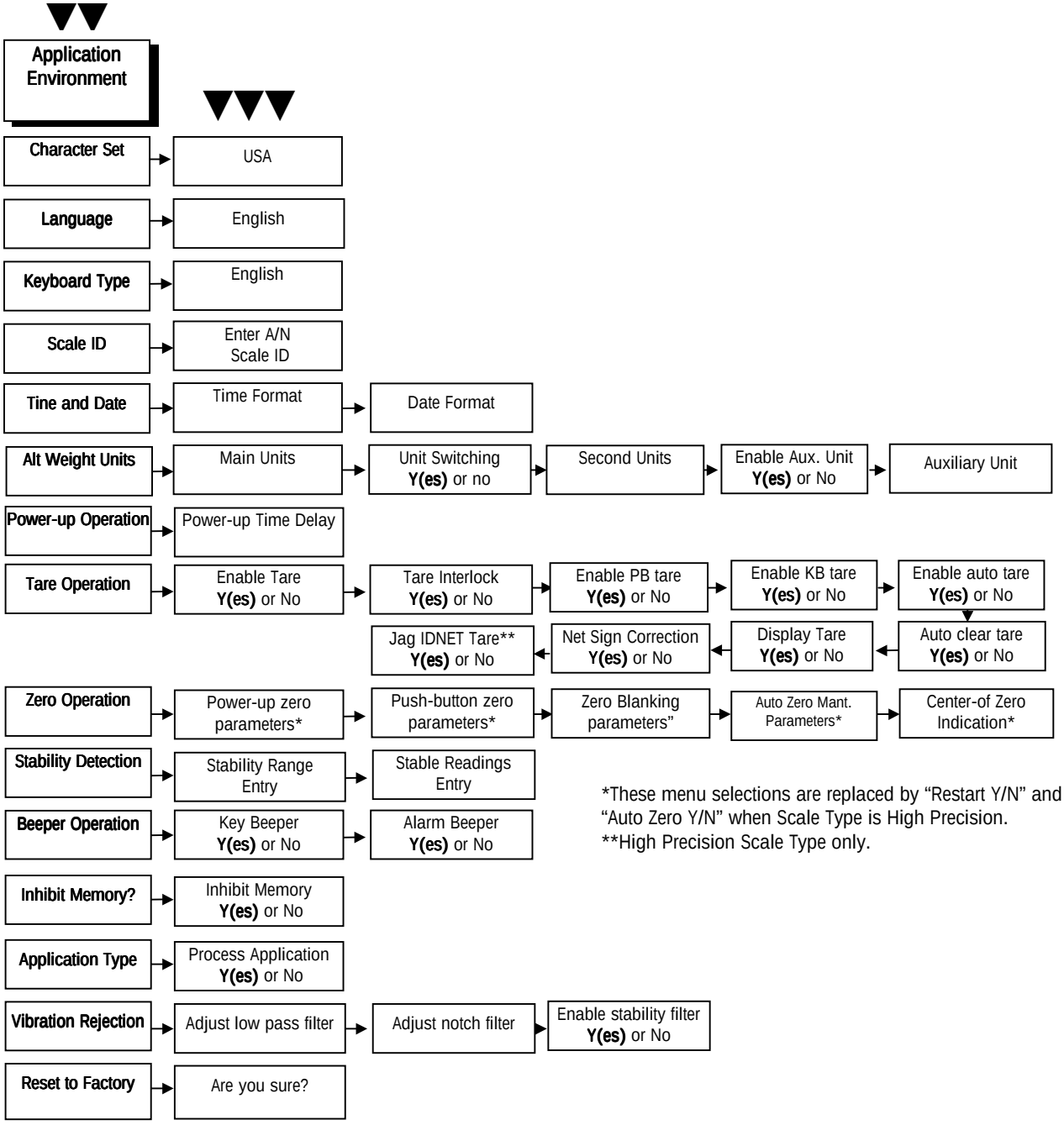
To save the programmed values, press ENTER. For certified scale applications (legal for trade), the identcode counter increments by one after confirmation (pressing of the ENTER key). This corresponds to destroying the certification seal. Recertification of the scale must be implemented according to local regulations.

RETURN Program Sub-block

If the parameters were not stored using the previous program sub-block, you may return to normal operation by pressing ENTER at this step. Changes to parameters and calibration will NOT be stored, and the identcode counter will not increment.

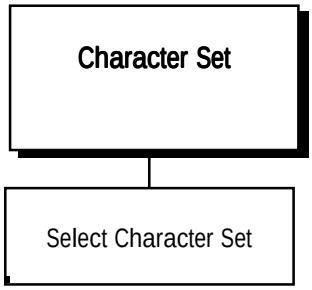
Application Environment Program Block

The Application Environment program block lets you set the features of the scale that are specific to the customer's application. The following diagram describes this block:



*These menu selections are replaced by "Restart Y/N" and "Auto Zero Y/N" when Scale Type is High Precision.
**High Precision Scale Type only.

1. Character Set Sub-block

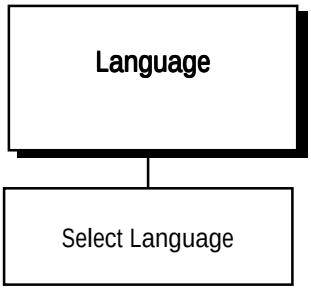


The Character Set sub-block lets you select a display character set appropriate for the location where the JAGXTREME terminal is used. Depending on the character set, some ASCII characters will be replaced with specific international characters.

To configure the sub-block:

1. Press ENTER at the **Character Set** prompt.
2. At the **USA** prompt, press SELECT to display the desired character set.
3. Press ENTER to continue to the next sub-block or ESCAPE to exit setup.

2. Language Sub-block

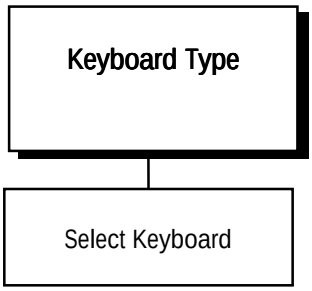


The Language sub-block lets you select the language in which all JAGXTREME terminal prompts and messages are displayed.

To configure the sub-block:

1. Press ENTER at the **Language** prompt.
2. At the **English** prompt, press SELECT to display the desired language:
   - English
   - French
   - German
   - Spanish
3. Press ENTER to continue to the next sub-block or ESCAPE to exit setup.

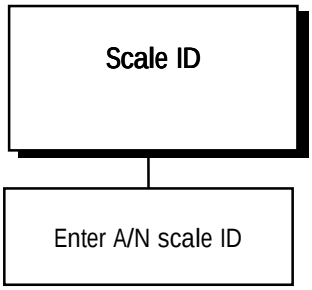
3. Keyboard Type Sub-block



The Keyboard Type sub-block lets you select the type of alternate computer-type keyboard (if used). It does not configure the JAGXTREME terminal keypad.

1. Press ENTER at the **Keyboard Type** prompt.
2. At the **English** prompt, press SELECT to display the desired keyboard type:
   - English
   - French
   - German
   - Spanish
3. Press ENTER to continue to the next sub-block or ESCAPE to exit setup.

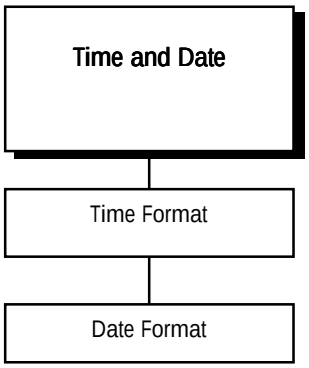
4. Scale ID Sub-block



The Scale ID sub-block lets you assign an identification code to a scale for use in printing and when selecting a scale for operator viewing or interaction. The Scale ID can be up to 8 alphanumeric characters. The default scale ID is the JAGXTREME terminal number as determined by the Ethernet address jumpers on the Controller board and by the internal scale designation.

1. Press ENTER at the **Scale ID** prompt.
2. At the **ID?** prompt you can either select a predefined scale identification or create a new ID using the numeric keys to enter the scale identification label.
3. Press ENTER to continue to the next sub-block or ESCAPE to exit setup.

5. Time and Date Sub-block



This sub-block lets you set the time and date format. If you do not select a format, the default time and date format based on the Market location will be used.

To configure the sub-block:

1. Press ENTER at the **Time and Date** prompt and again at **Time Format?**
2. At the **Separator?** prompt, select a character to separate hour, minutes, and seconds:
   - (:) colon
   - (-) dash
   - (.) period
   - (sp) space
   - None
3. At the **Format?** prompt, select the desired time format:
   - 24:MM 24 hour clock, no seconds
   - 24:MM:SS 24 hour clock with seconds
   - 12:MM 12 hour clock, no seconds
   - 12:MM:SS 12 hour clock with seconds
   - None Time disabled through MEMORY key
4. Press ENTER at the **Date Format?** prompt.
5. At the **Separator?** prompt, select a character to separate month, day, and year:
   - (:) colon
   - (-) dash
   - (.) period
   - (sp) space
   - (/) slash
   - None

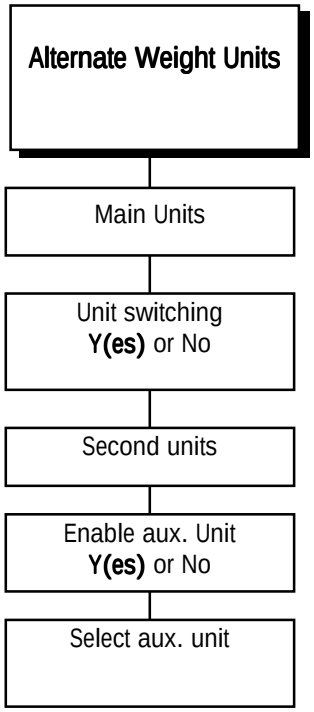
The time format choices are given with the separator you selected in step 2.

A Julian date is maintained by the terminal and is available for printing.

The date format choices are given with the separator you selected in step 5.

6. At the **Fmt?** prompt, select the desired date format:
   - DD/MMM/YYYY Day (num), Month (alpha), Year (4 digits)
   - DD/MM/YYDay (num), Month (num), Year (2 digits)
   - MM/DD/YYMonth (num), Day (num), Year (2 digits)
   - MMM/DD/YYYY Month (alpha), Day (num), Year (4 digits)
   - YY/MM/DDYear (2 digits), Month (num), Day (num)
   - YYYY/MMM/DD Year (4 digits), Month (alpha), Day (num)
   - None Date disabled through MEMORY key
7. Press ENTER to continue to the next sub-block or press ESCAPE to exit the setup mode.

6. Alternate Weight Units Sub-block



The unit selected for calibration must be either main or secondary units.

If auxiliary units are enabled, tare cannot be displayed in the lower display.

Alternate weight units selection is reset to factory default under the Scale Interface Program Block, NOT the Application Environment Program Block.

The Alternate Weight Units sub-block lets you select the unit(s) of measure for the top weight display, enable or disable units switching, or specify another unit of measure for the lower display in addition to the main units shown in the top display. You can select an alternate weight unit from various pre-programmed standard units or create a special unit with a custom name and conversion factor.

To configure the sub-block:

1. Press ENTER at the **Alt Weight Units** prompt to open the sub-block.
2. At the **Main Units?** prompt, select a main unit. Choose one:
   - lb (pounds)
   - kg (kilograms)
   - g (grams)—a decal over the kg legend is required
   - t (metric tons)—a decal is required
3. At the **Unit Switching?** prompt, select **Y(es)** or **N(o)** to enable or disable unit switching. If unit switching is enabled, it will switch between Main Units and Second Units. METTLER TOLEDO recommends disabling unit switching to avoid confusion if setpoints are used.
4. At the **Second Units?** prompt, select a secondary weight unit. Choose one:
   - lb (pounds)
   - kg (kilograms)
   - g (grams)—a decal over the kg legend is required
   - t (metric tons)—a decal is required
5. If the main units selected above are not the calibration units (as selected in the Scale Interface Program Block, Calibration Units Sub-Block), this choice is restricted to the Calibration Units.
6. If auxiliary units are enabled, tare cannot be displayed in the lower display.
7. At the **Enbl Aux Unit?** prompt, select **Y(es)** or **N(o)** to enable or disable the display of another unit of measure on the bottom display.

If Auxiliary Units Are Enabled

NOTE: The alternate weight units selection is reset to factory default under the Scale Interface Program Block, NOT the Application Environment Program Block.

1. At the **Aux Unit?** prompt, select the desired pre-programmed auxiliary unit conversion factor or define a custom unit. The auxiliary unit selected here also applies to the rate function. Selections include:

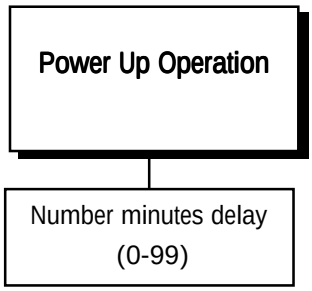
   - lb
   - kg
   - g
   - oz
   - lb-oz
   - dwt
   - t
   - ton
   - custom
   - ozt

If Custom Unit Is Selected

1. At the **Factor?** prompt, enter a conversion factor. This factor is the number that will by multiplied by the main units to calculate the custom unit. Some rounding error may occur since this calculation uses a higher internal resolution to determine the converted value. Make sure that the maximum converted value does not exceed the display capacity of the lower display.
2. At the **Name?** prompt, enter the name for the custom unit, up to six characters.
3. At the **Rate Enabled?** prompt, select **Y(es)** or **N(o)** to enable or disable the rate parameters for the custom unit. Rate parameters define the period of time JAGXTREME terminal uses when displaying average weight change. If disabled, JAGXTREME terminal continues to the next sub-block. If enabled, configure the next two parameters.

   Auxiliary Units must be enabled to use the rate function.
4. At the **Time Units?** prompt, select the rate function time units. Options include:
   - Sec—average weight change per second
   - Min—average weight change per minute
   - Hour—average weight change per hour
5. At the **Int Period?** prompt, use the numeric keys to enter the sampling period (in seconds) that the terminal will use to calculate the average weight change for the time units selected above. You must enter a value between 1 and 60.
6. At the **Intrval?** prompt, use the SELECT key to select 1/2 sec(ond),1 sec(ond), or 5 sec(onds). This determines how often the terminal calculates a new rate value. Use 1 sec if you have a fast process which requires the most current rate value. Use 5 sec when you want a smoother rate value.
7. Continue to the next sub-block or exit the setup mode.

7. Power Up Operation Sub-block

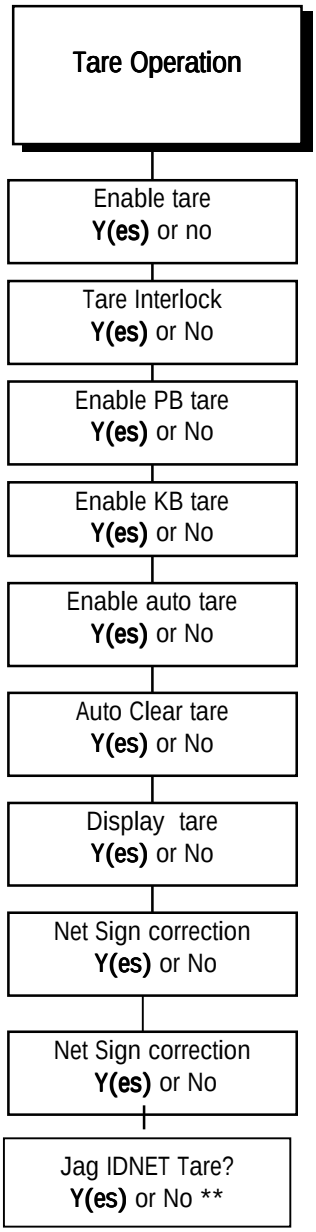


The Power Up Operation sub-block lets you specify a time delay before the scale is operational. This allows a sufficient warm-up period for stabilizing the scale and load cell electronics. The JAGXTREME terminal displays a countdown clock indicating the time remaining in the specified warm-up period.

To configure the sub-block:

1. Press ENTER at the **Power-Up Oper** prompt.
2. At the **Pwr-Up Timer?** prompt, enter the number of minutes (0-99) that the terminal will delay before indicating the weight in normal operating mode.
3. Continue to the next sub-block or exit the setup mode.

8. Tare Operation Sub-block



The Tare Operation sub-block lets you enable or disable the various tare options offered in the JAGXTREME terminal.

Pushbutton Tare—If enabled, pushbutton tare subtracts the weight of an empty container on the scale when the TARE key is pressed. The JAGXTREME terminal displays the net weight when a sample is placed in the container.

Keyboard Tare—If keyboard tare (preset tare) is enabled, you can enter the known tare weight of a filled container, then press the ENTER key to subtract the container tare weight from the gross weight and display the net weight of the sample.

Auto Tare—If auto tare is enabled the terminal automatically tares the scale when the load on the platform exceeds a predetermined threshold value.

You can also configure:

Auto Clear Tare—If auto clear tare is enabled tare is automatically cleared and the indicator returns to gross mode when the weight goes above, then drops below a predetermined threshold value. You can also specify that tare be automatically cleared after a print operation.

Tare Interlock—If tare interlock is enabled limits are placed on how tare values can be cleared and entered in legal-for-trade applications.

Net Sign Correction—If you enable the Net Sign Correction feature, A Truck In/Out facility can handle two situations:

- Weighing a full truck first and, after emptying the truck, taking the tare weight of the empty truck to find the net weight of its contents.
- Taking the tare weight of an empty truck and, after loading the truck, taking the full weight of the truck to find the net weight of its contents.

Net Sign Correction delays the decision of which weighment is the gross weight and which weighment is the tare weight until the operator prints the ticket. At that time, the JAGXTREME terminal compares the two weighments and takes the lower weight value as the tare weight. The net weight is always a positive value.

To configure the Tare Operation sub-block:

1. Press ENTER at the **Tare Operations** prompt to open the sub-block.
2. At the **Enable Tare?** prompt, select **Y(es)** or **N(o)** to enable or disable tare. If you select **N(o)**, the terminal proceeds to the Zero Operation sub-block. Access to other tare features is not possible if tare is disabled.
3. At the **Tare Interlck?** prompt, select **Y(es)** or **N(o)** to enable or disable tare interlock.
4. At the **Enabl PB Tare?** prompt, select **Y(es)** or **N(o)** to enable or disable pushbutton tare.
5. At the **Enabl KB Tare?** prompt, select **Y(es)** or **N(o)** to enable or disable keyboard tare.
6. At the **Enb Auto Tare?** prompt, select **Y(es)** or **N(o)** to enable or disable auto tare.

If Auto Tare Is Enabled

**Applies only to IDNET (MMR) bases.

1. Press ENTER at the **Tare Threshold** prompt; at the **Wgt?** prompt, enter the desired threshold value. The threshold value is a unit value such as 1.5 pounds. When weight on the platform exceeds the threshold value, then settles to no-motion, the terminal automatically tares.
2. Press ENTER at the **Reset Threshold** prompt. At the **Wgt?** prompt, enter the desired reset threshold value. This is a unit value and must be less than the tare threshold. When weight on the platform falls below the reset threshold value, as when the load has been removed, the terminal automatically rearms the auto tare trigger.
3. At the **Check Motion?** prompt, select **Y(es)** or **N(o)** to enable or disable the motion check. If enabled, the terminal checks for stability of the load on the platform before resetting the auto tare trigger.

Printing and tare operations will wait until a stable condition exists before proceeding with the action. See Stability Detect sub-block in this chapter for more information on setting the sensitivity.

4. At the **Auto Clr Tare** prompt, select **Y(es)** or **N(o)** to enable or disable auto clear tare. Auto clear tare depends on the tare interlock condition.

If Tare Interlock and Auto Clear Tare Are Enabled

- The terminal proceeds to the **Display Tare** prompt. Continue to step 8.

Tare will clear only at gross zero if tare interlock and auto clear tare are both enabled.

If Tare Interlock Is Disabled, and Auto Clear Tare Is Enabled

- At the **After Print?** prompt, select **Y(es)** to clear tare after a print command is issued, or select **N(o)** to clear tare at a predetermined threshold value.

If Auto Clear Tare After Print Is Disabled

If auto clear tare is enabled, the terminal does not display the **Clear Threshold** prompt.

1. Press ENTER at the **Clear Threshold** prompt; at the **Wgt?** prompt enter a unit value. When the gross scale weight exceeds then falls below the threshold value, the terminal automatically clears tare and returns to gross mode.
2. At the **Check Motion?** prompt, select **Y(es)** or **N(o)** to enable or disable the motion check. If enabled, the terminal checks for stability of the load on the platform before proceeding with auto clear tare.

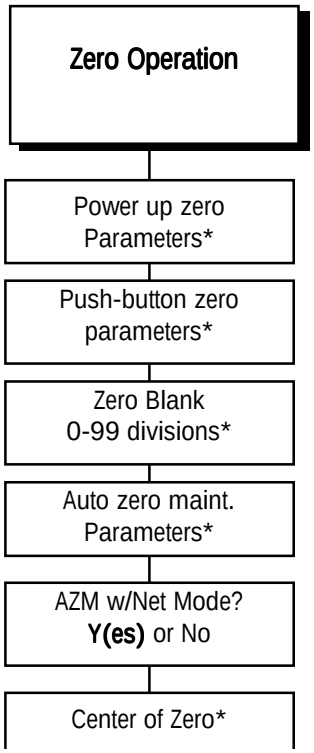
Tare will not be displayed if an auxiliary unit is selected. Otherwise, tare is displayed in the lower display area.

3. At the **Display Tare?** prompt, select **Y(es)** or **N(o)** to enable or disable the tare display. If enabled, the terminal displays the current tare value on the lower display, provided the display is not showing other operator messages.
4. At the **Net Sign Corr?** prompt, select **Y(es)** or **N(o)** to enable or disable the net sign correction feature.
5. At the **JagIDNET Tare?** prompt, select **Y(es)** or **N(o)** to enable or disable this feature. NOTE: This prompt only occurs when you have an IDNET base. If you enable this feature, Tare is done in the terminal. If you disable this feature, Tare is done in the IDNET base.

- When Tare is done in the terminal, the command is executed immediately. Tare is not successful when there is motion on the scale or if there is zero or negative weight on the scale. The DataOK bit is never turned off during this operation.
- When Tare is done in the IDNET base, the terminal sends the Tare command to the IDNET base. If the scale is in motion, the IDNET base holds the tare command and suspends communications with the terminal. If communication is suspended for more than four seconds, the terminal turns off the DataOK bit and blanks the display. When motion stops, the IDNET base completes the tare operation and resumes communications with the JAGXTREME terminal. The terminal then turns on the DataOK bit.

6. Press ENTER to continue to the next sub-block or ESCAPE to exit setup.

9a. Zero Operation Sub-block



*These menu selections are replaced by "Restart? Y/N" when Scale Type is High Precision.

A pre-determined number of consecutive readings from the scale must fall within the range specified before the scale compensates for changes in the zero reference.

The Zero Operation sub-block lets you set the zero reference parameters. For terminals connected to an IDNET base, only the Auto Zero Maintenance portion of the sub-block is accessed. For all other scale base types, you can configure any or all of these options:

Power-up Zero—automatically zeros the terminal at power-up if weight on the scale is within a given range. If the weight on the scale is beyond the designated range, the display will not read zero until weight falls within the range.

Pushbutton Zero—manually compensates for material build-up on the scale and recaptures zero.

Zero Blank—determines when the display will go blank if weight falls below zero.

Auto Zero Maintenance (AZM)—automatically compensates for small changes in zero resulting from material build-up on the scale or temperature fluctuations.

AZM w/Net Mode—automatically corrects zero close to net zero and gross zero.

Center of Zero—determines if the center-of-zero annunciator lights at gross zero only or at gross and net zero.

Power-up zero capture and pushbutton zero ranges are based on the actual calibrated zero. If the positive and/or negative range value for power-up zero is greater than that for pushbutton zero, it is possible for the scale to automatically capture more weight on power-up than can be compensated for manually.

To configure the sub-block:

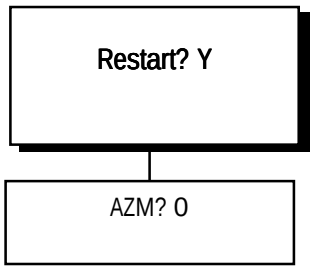
1. Press ENTER at the **Zero Operation** prompt to open the sub-block, then press ENTER at the **Power Up Zero** prompt to configure the power up zero option.
2. At the **Positve Rng?** prompt, enter a numeric value for the positive range of zero capture. This value is a percent of scale capacity.
3. At the **Negatve Rng?** prompt, enter a numeric value for the negative range of zero capture. This value is also a percent of scale capacity.
4. Press ENTER at the **Pushbutton Zero?** prompt to access these parameters.
5. At the **Positve Rng?** prompt, enter a numeric value for the positive capture range. This value is a percent of scale capacity.
6. At the **Negatve Rng?** prompt, enter a numeric value for the negative capture range. This value is also a percent of scale capacity.

Power-up zero should be disabled by setting the positive and negative ranges to 0% for scales such as tanks and hoppers which may lose power in the middle of a control process.

Pushbutton zero values are stored in the JAGXTREME terminal's memory. In case of power loss, the terminal will display an accurate weight when power is restored.

7. At the **Zero Blank?** prompt, enter 0-98 to specify the display divisions behind zero before display blanking. The default is 5. A setting of 99 programs the terminal to display up to 50% of the calibrated capacity under gross zero.
8. Press ENTER at the **Auto Zero Maint?** prompt to enable the option.
9. At the **Range?** prompt, enter a range (in divisions) within which the JAGXTREME terminal adjusts for small changes in zero. Enter divisions +/- 0.1 - 10. Adjustments are made at a rate of 0.03 increments per second
10. At the **AZM w/Net Mode?** prompt, select **Y(es)** to automatically correct zero close to net zero and gross zero. Select **N(o)** for AZM to function only near gross zero.
11. At the **COZ?** prompt, select if the center-of-zero annunciator should illuminate at **Gross Only** or at **Gross and Net** zero.
12. Press ENTER to continue to the next sub-block or ESCAPE to exit setup.

9b. Zero Operation Sub-block for MMR (IDNET) Bases

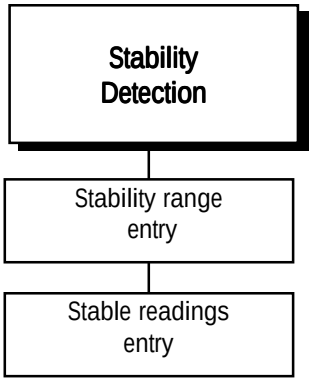


Scale zeroing is done within the IDNET base. The terminal sends the Zero command to the base. If the scale is in motion, the base holds the zero command and suspends communication with the terminal. If communication is suspended for more than four seconds, the terminal turns off the DataOK bit and blanks the display. When motion stops, the base completes the zero operation, resuming communications with the terminal. The terminal then turns on the DataOK bit and the display.

To configure the sub-block:

1. At the **Restart? Y** prompt press ENTER to accept or SELECT, followed by ENTER to change the response to **N(o)** and to accept that selection. When the restart feature is enabled, the current zero setting is saved and restored after a power loss. When the restart feature is NOT selected, the IDNET base "re-zeroes" at power up.
2. Press ENTER at the **AZM? 0** prompt to turn autozero maintenance OFF. To turn it ON, press SELECT until the prompt displays a **1**. Press ENTER.

10a. Stability Detect Sub-block



The stability detection feature determines when a no-motion condition exists on the scale. The sensitivity level determines what is considered stable. Printing and tare operations will wait for scale stability before carrying out a command.

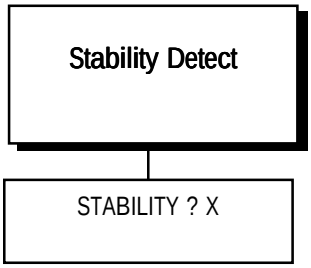
Stability detection occurs over a predefined period of time and allows a predetermined "acceptable" amount of motion in scale divisions. The acceptable amount of motion is considered the range and the period of time is called the interval. When the JAGXTREME terminal is used with an IDNET base, there are four settings of stability filtering available.

To configure the sub-block:

1. Press ENTER at the **Stability Detect** prompt and again at the **Stability Range?** prompt.
2. At the **Range?** prompt, enter the acceptable motion range (+/- 0.1 to 9.9 divisions).
3. Press ENTER at the **Stable Readings?** prompt to configure the stability parameters.

4. At the **Intrval?** prompt, enter the number of seconds (0 to 9.9) that the weight must remain within the range values for a no-motion condition.
5. Continue to the next sub-block or exit the setup mode.

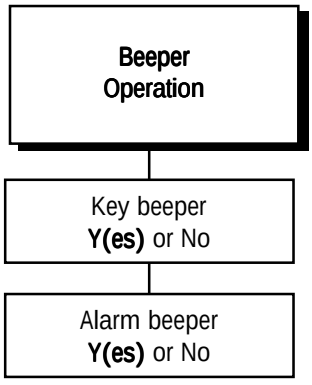
10b. Stability Detect Sub-block for MMR (IDNET) Bases



Stability Detection of an MMR (IDNET) base is determined by the base electronics. The stability detection feature determines when a no-motion condition exists on the weighing platform. The sensitivity level determines what is considered stable. Printing and tare operations will wait for scale stability before carrying out the command.

The only prompt that will appear will be **STABILITY ? X**. Use the SELECT key to change the value of the stability filter from 0 (no stability detection) or 1 (fast indication of weight) through 4 (slow indication of weight).

11. Beeper Operation Sub-block

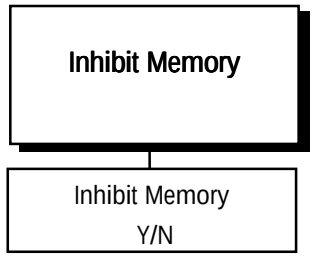


The JAGXTREME terminal is capable of making an audible beep each time a key is pressed and an error alarm when an inappropriate key is pressed. This sub-block lets you enable or disable the keyboard sound.

To configure the sub-block:

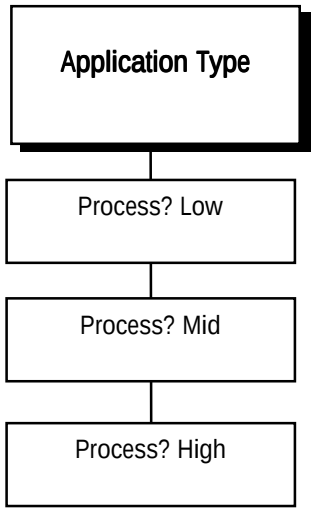
1. Press ENTER at the **Beeper Operation** prompt to open the sub-block.
2. At the **Key Beeper?** prompt, select **Y(es)** or **N(o)** to enable or disable sound when a key is pressed, as well as the double beep acknowledgment message.
3. At the **Alarm Beeper** prompt, select **Y(es)** or **N(o)** to enable or disable an alarm that sounds when an error occurs or an inappropriate button is pressed.
4. Continue to the next sub-block or exit the setup mode.

12. Inhibit Memory Sub-Block



The Inhibit Memory sub-block is used to disable the MEMORY key on the JAGXTREME terminal keypad. If **Y(es)** is selected, the MEMORY key will be disabled. If N(o) is selected, the key will function as normal.

13. Application Type Sub-block

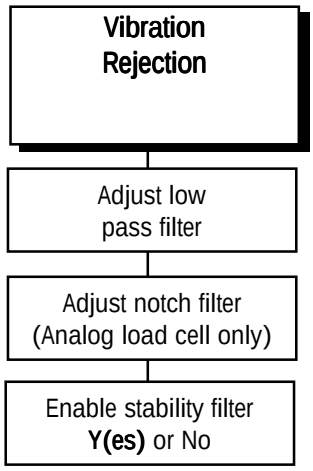


The Application Type sub-block indicates whether or not the scale is used for a process application. This sub-block affects the A/D rate and the ability to enable and/or disable the stability filter. To configure the sub-block:

At the **Process?** prompt,

1. Select **Low** - The continuous output is at 5 Hz.
2. Select **Ultra-Res, DigiTOL, High Precision,** or **POWERCELL** load cells. The A/D rate is the rate of which the load cell is capable, and the standard continuous output update rate is the same as the A/D rate.
3. Select **Mid.** The stability filter can be enabled or disabled. For analog load cells, the A/D and setpoint comparison rates are 20 Hz, and the standard continuous output updates the weight 10 times per second for all scale types. If the A/D update rate is less than 10, the continuous output will be at the A/D update rate.
4. Select **High.** The stability filter cannot be enabled. For Analog load cells, the A/D rate is 17 Hz and the setpoint comparison rate is 50 Hz, and the standard continuous output updates the weight 17 times per second.

14. Vibration Rejection Sub-block



The JAGXTREME terminal has several filters to compensate for environmental disturbances such as vibration or noise. This sub-block lets you configure the TraxDSP filters for optimum vibration/disturbance rejection.

The Vibration Rejection sub-block allows programming of values including

- **Low Pass Filter Frequency—**Low Pass Frequency is the frequency above which all disturbances are filtered out. The lower the frequency, the better the disturbance rejection, but the longer the settling time required for the scale.
- **Poles—**The number of poles determines the slope of the filtering cutoff. For most applications, a slope value of 8 is acceptable; however, decreasing this number will improve settling time slightly. Do not enter a value lower than 4 for this parameter.
- **Notch Filter Frequency—**The Notch Filter allows selection of one specific frequency below the lowpass filter value that can also be filtered out. This enables setting the lowpass filter higher to filter out all but one frequency (that the notch filter will handle) and obtain a faster settling time.
- **Stability Filter—**The Stability Filter eliminates weight changes within a given range around a stable weight reading. This filter eliminates fluctuations in the weight display created by movement. You cannot enable the stability filter if the **Process Application Type** parameter is configured High for dynamic weighing such as batching or filling applications. The Stability Filter uses very stiff filtering as long as there is motion on the scale so that the weight display changes slowly. There is minimal jitter on the weight display. Once the terminal detects a "no motion" condition, it switches the Stability Filter to the standard lowpass filter. As a result, the weight quickly moves to its final value.

TraxDSP™ filtering is not available with an IDNET base. These bases allow you to select between three types of process applications and three filter settings.

Note: Autotune is available only with analog load cell scale I/P PCBs of revisions (or higher) listed below:

- A15290700A Dual Analog Load Cell
- A15345400A Single Analog Load Cell
- B15360100A Reduced Excitatation Dual Analog Load Cell
- B15360200A Reduced Excitation Single Analog Load Cell

To configure the sub-block:

1. Press ENTER at the **Vibration Reject** prompt to open the sub-block.
2. At the **Run Autotune?** prompt, select **N(o)** to bypass the auto tune process or select **Y(es)** to automatically tune the low pass and notch filers for analog scales only.
   - If **Y(es)** is selected, the display reads **Adjust 1** and the cursor moves across the display while the terminal measures the vibration under current conditions. The terminal automatically displays **Measure 1** and the cursor moves across the display while the terminal adjusts the vibration filter accordingly.
   - The terminal can repeat the measure and adjust process up to six times, depending on the amount and regularity of the vibration. When the vibration adjustment is made, the terminal indicates either **Success** or **Auto Tune Failed** then continues to the next prompt.
3. Press ENTER at the **Adjust Lowpass?** prompt to configure the parameters governing the low pass filter. Disturbances falling below these parameters pass through the filter; disturbances above the parameters are filtered out.
4. At the **Frequency?** prompt, enter the frequency above which disturbances are filtered out.
5. At the **Poles?** prompt, enter the number of poles.
6. At the **Adjust Notch?** prompt, press ENTER to configure the parameters governing selective filtering.

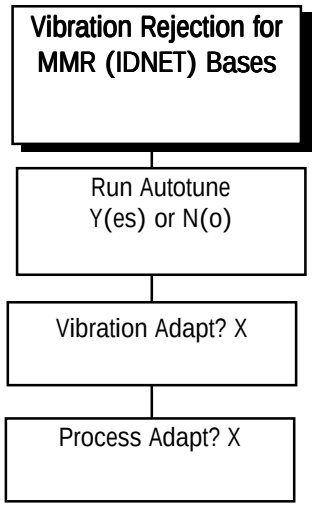
The Adjust Notch parameter appears only if you are configuring an analog load cell. If configuring a DigiTOL scale, JAGXTREME proceeds to step 6.

7. At the **Frequency?** prompt, enter the frequency at which any disturbance is filtered out.
8. You cannot enable the stability filter if the **Process Application** parameter is configured **Y(es)** for dynamic weighing such as batching or filling applications.
9. At the **Stable Filter?** prompt, select **Y(es)** or **N(o)** to enable or disable the stability filter. Use this for static weighing applications only.

The default values for vibration rejection that are programmed in the factory are good for most applications; however, if you find that the weight display is still unstable, the following steps may help:

1. Set the Low Pass filter to 9.9, poles to 8, and the Notch Filter to 0.0.
2. Lower the frequency setting of the Low Pass Filter by increments of 1.0 and observe the amount of variation at each setting. When you see a noticeable improvement in display stability, vary the Low Pass Filter setting slightly below the frequency setting in increments of 0.1 for minimum fluctuation.
3. Record the frequency and approximate number of increments variation for the settings that show noticeable reduction in display fluctuation. This is the lowest frequency of vibration causing the display to fluctuate.
4. Set the Low Pass Filter back to 9.9.
5. Set the Notch Filter to the frequency that caused the largest reduction in increments change (recorded in step c.).
6. If the display is still fluctuating too much, repeat step b. observing the display fluctuation. Reduce the Low Pass Filter setting until the display is acceptable.
7. Always check the weight display update time after each filter adjustment to be sure that the update rate is fast enough for the application.

14a. Vibration Rejection Sub-block for MMR



When the JAGXTREME terminal is used with an IDNET base, the following prompts and selections are possible:

1. Press ENTER at the **VIBRATION ADAPT? X** prompt to select the type of vibration filtering:
2. Use the SELECT key to display the appropriate filter level, then press ENTER. Options include:
   - 1 (low), use for virtually disturbance free, stable surroundings. The indicator responds quicker to changes in weight, and is more sensitive to external conditions.
   - 2 (med), use for normal ambient conditions. This is the factory default setting.
   - 3 (high), use for unstable surroundings. The scale is less responsive than the factory default setting, and is less sensitive to external influences.
3. Press ENTER at the **PROCESS ADAPT? X** prompt, then select the desired option:
   - **1**—use for the dispensing of liquids or powders.
   - **2**—use for all types of normal weighing applications. This is the factory default setting.
   - **3**—use for checkweighing types of applications.

Serial Interface Program Block

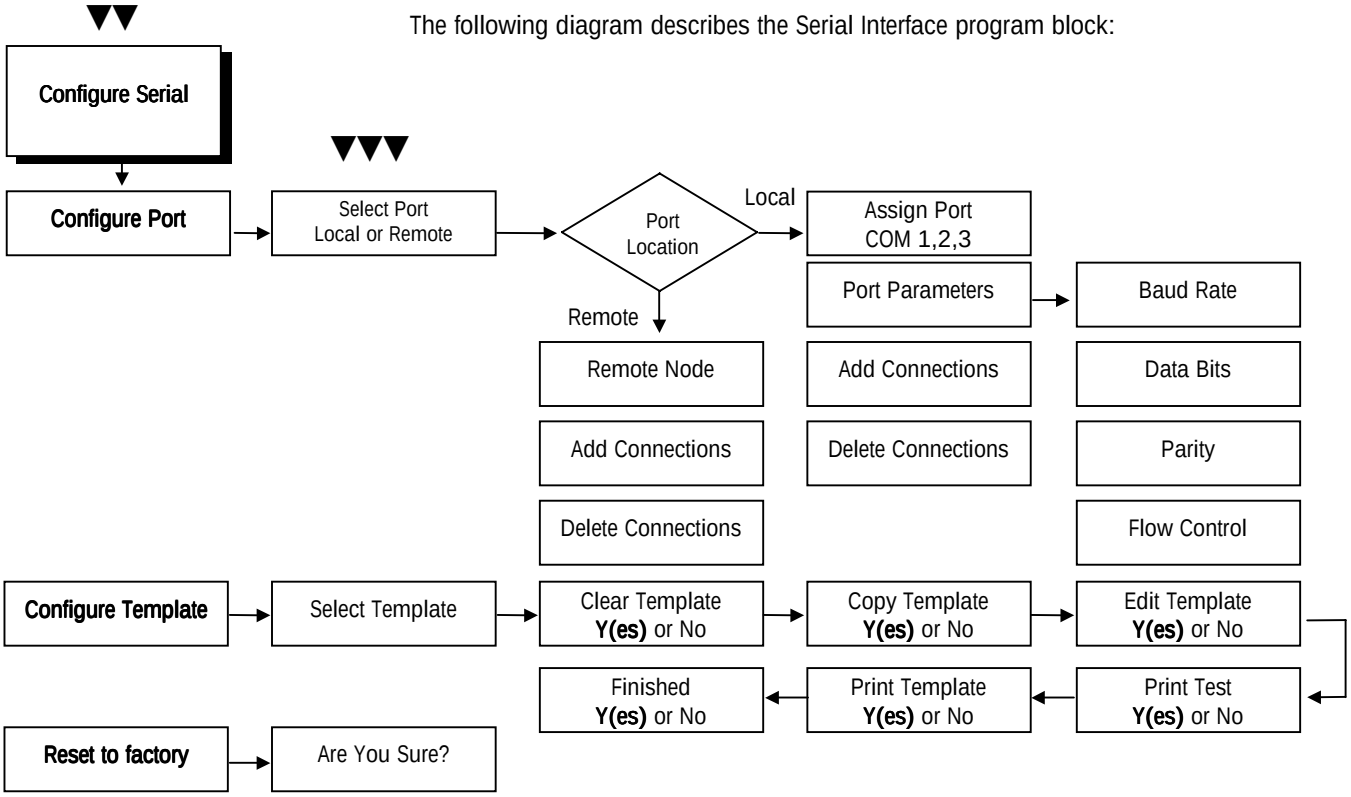
The Serial Interface program block lets you set parameters to control data flow across the JAGXTREME terminal's serial communication (COM) ports. This includes assigning port parameters and adding or and deleting a connection.

The input and output COM ports are used to communicate data on demand or continuously. COM ports may also be used for information exchange between a PC and the terminal.

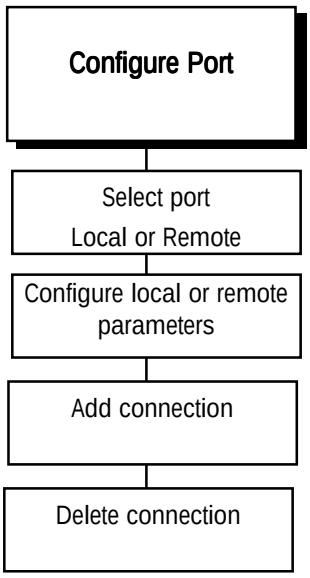
JAGXTREME terminals have two serial I/O ports (COM1 and COM2). While one port might be used to support a DigiTOL type scale, another may be used for data output as needed. If an optional Multifunction PCB is connected, two additional serial I/O ports are available (COM3 and COM4).

A DigiTOL scale can be connected to COM2 or COM4 and is configured through the Scale Interface block. The port to which the DigiTOL scale is connected is not available for any other application. When DigiTOL or DJ-Box is selected in the Scale Type sub-block (Scale Interface program block), the serial port (COM2 or COM4) is automatically set for communications to a DigiTOL base.

The following diagram describes the Serial Interface program block:



1. Configure Port Sub-block



For example, on a standard JAGXTREME unit with a single analog scale, you may have a remote display connected to COM1 and a printer connected to COM2.

This sub-block lets you configure the serial ports on your local terminal for data exchange, and enables communication with other JAGXTREME terminals in an Ethernet cluster. You can configure only those ports that are physically available.

To configure the program block:

1. Press ENTER at the **Configure Serial** prompt to open the program block. Press ENTER at the **Configure Port** prompt. Press ENTER at the **Select Port** prompt.
2. At the **Location?** prompt, select **Local** or **Remote**. Local refers to COM ports on the JAGXTREME terminal you are working with at the time. Remote refers to COM ports on other terminals connected in an Ethernet cluster.
3. Add the connection you just configured. It may be necessary to delete an existing connection that conflicts with the new one. For example, to connect a printer you must configure a COM port and add that port before the terminal can communicate with the printer.

If You Select Local

Configuring a local COM port involves defining the parameters that govern how data is transmitted through the port. You can configure communication parameters only for your local terminal. Communication parameters for remote terminals must be configured at the remote locations.

1. At the **Assign Prt?** prompt, select the local COM port to be configured (COM1 or COM2). COM3 and COM4 are available if an optional Multifunction PCB is installed.
2. Press ENTER at the **Port Parameters?** prompt. Configure these parameters:
   - Interface Type (COM2 only)
   - Baud Rate
   - Data Bits
   - Parity

Interface Type

If COM2 is being configured, you must identify the interface type. The interface type prompt does not appear if you are configuring COM1.

1. At the **I/F Type?** prompt, select the desired interface type. Choices include:
   - RS-232
   - RS-422
   - RS-485

Baud Rate

The baud rate is the rate of information transfer in bits-per-second.

1. At the **Baud Rate?** prompt, select the desired rate for the selected port:
   - 300
   - 600
   - 1200
   - 2400
   - 4800
   - 9600
   - 19.2k
   - 38.4k
   - 57.6k
   - 76.8k
   - 115.2k

Data Bits

Data bits refers to the number of bits that make up an ASCII character that is transferred between units. Most METTLER TOLEDO equipment communicates using 7 data bits.

1. At the **Data Bits?** prompt, select 7 or 8 data bits.

Parity

COM1 and COM2 always have 1 stop bit.

Parity is an error checking mechanism for each byte.

1. At the **Parity?** prompt, select the desired option. Parity options include:
   - **Even**—the terminal sends an even number of logic 1 data bits. If the sum is odd, an eighth logic 1 bit is added for an even total. If the sum is even, a 0 bit is included to leave it unchanged.
   - **Odd**—the terminal sends an odd number of logic 1 data bits. If the sum is even, a logic 1 bit is added for an odd total. If the sum is odd, a 0 bit is included to leave it unchanged.
   - **None—**for use with eight data bits.

Flow

XON/XOFF requires character input. It will only work if the serial port has no other input connections. For example, you cannot configure CTPZSU In.

The flow parameter lets you control data flow from the selected port to a peripheral device that supports XON/XOFF data flow. If enabled, the JAGXTREME terminal monitors the XON/XOFF characters and controls data flow to help eliminate buffer overflow problems that can cause printing errors.

1. At the **Flow?** prompt, select the desired data flow option:
   - **None—**The JAGXTREME terminal does not respond to XON/XOFF.
   - **XON/XOFF—**The JAGXTREME terminal stops transmission on receipt of the XOFF character (13h) and resumes on receipt of the XON character (11h).

Remote

If you select **Remote**, the following steps will identify and list remote JAGXTREME terminals with which your terminal can communicate through its serial ports.

The remote terminal's communication parameters, such as baud rate, are configured in the remote terminal. You cannot configure remote communication parameters through this program block.

1. At the **Node?** prompt, select the remote terminal with which you will communicate. Five are available; the terminal you are configuring is excluded. Terminal numbers are determined by the Ethernet jumpers on the Controller board.
2. At the **Assign Prt?** prompt, select the COM port through which communication will take place. COM1, 2, 3 and 4 are available.

Add a Connection

The JAGXTREME terminal is programmed at the factory for COM1 to output scale 1 data on demand. COM2 is not configured at the factory. Before adding connections, METTLER TOLEDO recommends deleting the existing COM1 connection.

If you see the conflict exist error, you must first delete the existing connection before adding a new connection.

1. Press ENTER at the **Add Connection?** prompt.
2. At the **Type?** prompt, select the type of serial connection for the scale:
   - Serial Out
   - CTPZSU In
   - Bar Code In
   - Keyboard In
   - Cust Print from template (1 through 5)
   - TDC3000

- BasTerminal
- Multi Cont1 *
- Multi Cont 2*
- PPP/Modem

Note: You must include a summing scale when using Multi Cont 1 or 2.

If Serial Out is Selected

At the **Enter Scale#?** prompt, select the internal scale (A, B, or E). Press ENTER. The scale selected must be displayed on the terminal in order for you to use the PRINT key to complete the operation. To print data for both scales in a two-scale system regardless of the scale displayed, you must make a connection for scale A and an identical connection for B. Scale E is used for the summing scale connections.

At the **Mode?** prompt, select **Demand** (information that is sent upon request) or Continuous (a constant stream of information that is sent from the remote terminal).

Serial Out— Demand Mode

Templates determine the data to be sent for demand printing and are discussed in the Configure Template sub-block.

1. Press ENTER at the **Flexible Print?** prompt. Select **Y(es)** or **N(o)** at each of the prompts **Template 1-5?** indicating which template(s) you will print.
2. At the **Minimum Print?** prompt, select **Y(es)** or **N(o)** to enable or disable minimum print. If you select **Y(es)**, at the **Wgt?** prompt, enter a weight value below which printing cannot be initiated.

The minimum print and print interlock features are related to the scale, not the connection. Programming these features applies to any demand connection for that scale.

To change any of these parameters, you must delete the entire connection then recreate the connection. It is not possible to reenter setup and change a parameter.

3. At the **Print Interlock?** prompt, select **Y(es)** or **N(o)** to enable or disable feature.

   If Y(es), Print interlock allows only one print operation if scale weight is above a threshold value. To print again, the weight must fall below the reset threshold value then settle above the threshold value. Print interlock must be enabled to access the Auto Print feature.

4. Configure the following parameters if print interlock is enabled:

   - **Print Threshold—**Press ENTER at the **Print Threshold?** prompt. At the **Wgt?** prompt, enter the weight value that must be reached before printing can begin.
   - **Reset Threshold—**Press ENTER at the **Reset Threshold?** prompt. At the **Wgt?** prompt, enter the weight value below which the weight on the scale must fall before enabling the next print operation.
   - **Check Motion—**Select **Y(es)** or **N(o)** to enable or disable this parameter. If enabled, check motion prohibits the next print operation until weight on the scale stabilizes (no-motion) below the reset threshold.
   - **Auto-Print—**Select **Y(es)** or **N(o)** to enable or disable automatic printing. If enabled, printing will begin when a no-motion condition exists and scale weight is above the print threshold. Auto-print requires the weight to drop below the reset threshold before another auto print operation can take place. If **N(o),** Continue to the next sub-block or exit setup.

If a METTLER TOLEDO 3015 Setpoint Controller is used, it should be configured as if it were interfaced to a model 8530 terminal. Follow the instructions in the 3015 Setpoint Controller technical manual.

Serial Out—Continuous Mode

1. At the **Status?** prompt, select the mode for the status bits in continuous mode:
   - **Standard**—for continuous mode to operate normally.
   - **Setpnt**—to include the status of setpoints 1 through 4 in the continuous output format. If enabled, the first setpoint assigned to a scale becomes the first setpoint in the continuous output.
   - **Template**—to use one of the five print templates for continuous output. Select the desired template (1 through 5).

Refer to the appendix for complete status byte information.

If you assign Scale A and Scale B to the same continuous output port, the currently selected scale data is output to the continuous port.

Control characters affect the selected scale unless preceded by a specific scale designation character (A or B).

Refer to the appendix for more details on CTPZSU and remote ASCII control character input.

2. At the **Checksum?** prompt, select **Y(es)** or **N(o)** to enable or disable checksum. Checksum is a method of checking each line of data transmitted by encoding a check digit character at the end of the string. The receiving device must be able to calculate and compare this character to verify the data is correct.

   - Checksum is the 2s complement of the 7 low-order bits of the binary sum of all characters preceding the checksum, including control characters. Bit 8 is the parity bit (if enabled) of the 7 low-order bits of the checksum character.

If CTPZSU In is Selected

N(o) further parameters need to be configured. CTPZSU In is a serial connection enabling the terminal to perform several basic functions when specific ASCII control characters are received through the serial port.

Control characters affect the selected scale unless preceded by a specific scale designation character (A, B, or E). E indicates the summing scale.

C—clears the scale to gross

T—tares the scale

P—initiates a print command

Z—zeros the scale

S—selects a scale

U1—selects primary units

U2—selects secondary units

A Keyboard Tare can be entered by preceding the "T" with a numeric value. For example, 10.5T enters a Tare value of 10.5. If there is no preceding numeric value, "T" causes a Pushbutton Tare.

If Bar Code In is Selected

This connection type is used for input of serial data (requested from a prompt list step) The prompt list response source, configured in the Memory program block, must be Serial or Both. Refer to Appendix 1 for more information. **N(o)** additional parameters need to be configured.

If Keyboard In is Selected

This connection is used to receive serial characters emulating keyboard input. Refer to Appendix 1 for more information. **N(o)** additional parameters need to be configured.

If Custom Print from Template is Selected

This connection directs the serial port to output the selected characters and information from the corresponding template (Templates 1 though 5). This selection differs from the demand custom template print. The demand custom template print will cause the template to be sent serially when:

- The print button is pressed,
- An ASCII "P" command is sent to a COM port configured for "CTPZSU" input,
- A discrete input command to print is given,
- A print command is sent via a PLC interface, or
- A demand print is triggered through JagBASIC.

A Custom Print from Template will only cause the template to be sent serially when:

- A cust_prt discrete input for that template is used, or

- A JagBASIC program triggers the custom template print.

1. At the **Template 1?** prompt, select **Y(es)** or **N(o)** to include the template in the output. You must select **Y(es)** or **N(o)** for each template 1 through 5.

If TDC3000 is Selected

The serial port is assigned to a special Honeywell protocol. See Appendix 1 for more information.

If BasTerminal is Selected

JagBASIC supports a serial terminal, such as a dumb tube or a PC running a terminal emulator, as a console for JagBASIC program development and debugging. You can type commands at the serial terminal keyboard then view them on the serial terminal display. You must attach the serial terminal to a serial port on the local JAGXTREME terminal. See the appendix for more information.

Configuring BasTerminal

The Configure Serial menus allows you to setup the JagBASIC keyboard input from a serial port. You select the appropriate COM port and assign the BasTerminal connection to the port. When you assign the BasTerminal connection port, the input characters from the serial port are routed to JagBASIC. This connection is primarily intended for keyboard input to the JagBASIC interpreter. The Basic Interpreter displays the "BASIC:" prompt and input keystrokes to the BasTerminal.
You must also assign the Keyboard to JagBASIC in the JagBASIC setup menus.

If Multi Cont (1 or 2) is Selected

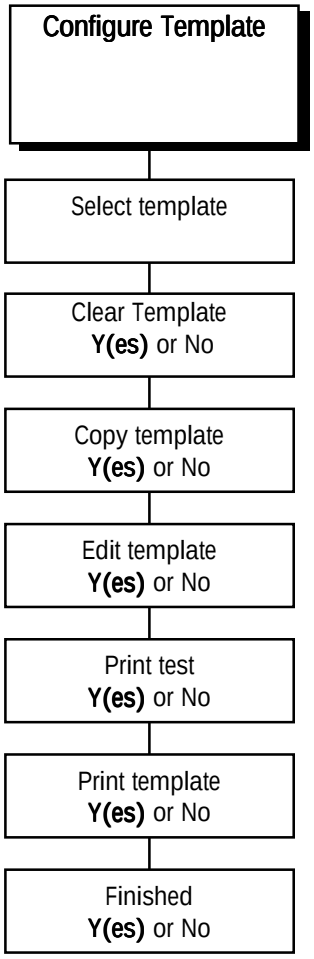
Multiplexed Continuous Outputs in two formats to interface with scoreboards and other devices. The continuous output message contains weight data for all local scales. Refer to the appendix.

1. Select the connection you wish to delete through the Select Port, Location, and Assign Port steps.
2. Press SELECT until the **Delete Connect?** prompt is displayed, then press ENTER. The terminal displays the name of the port you have chosen. If the connection you want to delete is not displayed, press SELECT to display the desired connection.
3. Press ENTER to delete the connection.
4. Press ENTER to continue to the next sub-block or press ESCAPE to setup.

If PPP/Modem is Selected

You may connect an external modem to COM1 or COM2. To complete modem setup, refer to the network section of this manual.

2. Configure Template Sub-Block



If you are creating multiple templates that are similar to each other, use the copy and edit template features to save time.

This sub-block lets you define up to five flexible templates. Templates are preconfigured output strings that are transmitted when a print operation is requested. Appendix 1 lists the default templates. You can use the five stored default templates as given, edit them, or clear them and create custom templates.

Templates are composed of any printed character, special character, or field. Each template can store up to 400 format characters. When configuring a template, you should occasionally test print since the terminal cannot determine if it has run out of space until it "compiles" all the data in the template and tries to print it. If you do overfill the allocated space, a **TEMPLATE OVERFLOW** error will be displayed. Any data exceeding the 400-character limit will be lost.

The elements are recorded then sent sequentially when the template is used when a demand print request is received.

The configuration steps that follow pertain to the currently selected scale.

1. Press ENTER at the **Config Template?** prompt to open the sub-block.
2. At the **Temp?** prompt, press SELECT to choose the number and name of the template you wish to edit or create. If an existing template has a customized name assigned to it, the name appears to the right of the prompt: **Temp? 1 Mettler**.
3. Select the action you want to take with the selected template. Actions include:
   - Clear Template
   - Copy Template
   - Edit/Create Template
4. You must respond **Y(es)** or **N(o)** to each prompt.

Clear Template

1. Select **Y(es)** or **N(o)** at the **Clear Template?** prompt.
2. If **Y(es)**, you must confirm your decision at the **Are You Sure?** prompt.

Copy Template

1. Select **Y(es)** or **N(o)** to copy another template into the current template.
2. If **Y(es)**, select the new template ID number. Confirm your decision at the **Are You Sure?** prompt. The current template will be cleared before the new one is copied.

Edit/Create Template

1. Select **Y(es)** or **N(o)** if you wish to edit the current template.
2. If **Y(es)**, you can edit the template name and/or edit, insert, or delete template components. The display reads **Name?** with the current name of the template given to the right of the prompt.
3. Change the template name by entering a new name (maximum 8 characters), or keep the current name by pressing ENTER.
4. The JAGXTREME terminal displays **E001** in the top display indicating that the first element of the template is displayed in the lower display area. If **End of Template** appears on the lower display, the template is empty.
5. Press SELECT to display the next element in the template. Press ZERO to display the previous element in the template. You can access any element in the template using the SELECT and ZERO keys.

6. You can also access specific elements by entering the number of the desired element. After entering the first digit of a new element, the lower display reads **Element? X**. X is the digit just entered. When the complete element number has been entered, press ENTER to access it.

If the element number you enter is greater than the last element number in the template, the JAGXTREME automatically displays the last element in the template.

7. Press ENTER to begin editing the displayed element. You can also begin editing at the **End of Template** position.
8. At the **Action?** prompt, select an editing option.
9. **EDIT** allows you to "replace" the current element with new data. The current element is automatically deleted.
10. **INSERT** allows you to insert a new field or character before the currently displayed element. The elements that follow are moved back one element number.
11. **DELETE** deletes the current element and moves each remaining element up one element number.
12. **DEL END** deletes all remaining elements from the displayed position to the end of the template.
13. If you are editing or inserting, at the **What?** prompt, select a data type. Data can be field information, printable ASCII characters, or special characters.
14. **FIELD** refers to actual data fields available through the terminal such as time, date, prompts, literals and weight data. Enter a field code from the table on the next page. NOTE: Although the table shows codes in lower case, the JAGXTREME terminal accepts field codes entered in upper or lower case.

The lengths shown in the table reflect the length of the field when matching the template to the desired result. When calculating the number of elements in the template, JAGXTREME data fields only take up seven characters.
.

JAGXTREME Data Field	Field Code*	Length
Tare Source	wsx07	1 N (0=none, 1=pb, 2=kb, 3=auto)**
Scale ID	csx18	8 A/N
Setpoint Value x = setpoint 1-8	spx05	10 A/N
Current Time[1]	jag20	11 A/N
Current Date [1]	jag19	11 A/N
Day of Week [1]	jag21	10 A/N
Julian Date[1]	jag07	5 A/N
Consecutive Number	jag09	8 N
Literal 01†	lit01	40 A/N
Literal 02†, etc	lit02, lit..	40 A/N
Prompt 01‡	pmt01	16 A/N
Prompt 02‡, etc	pmt02, pmt..	16 A/N
Prompt 01 Response	var01	As Programmed
Prompt 02 Response, etc	var02, var..	As Programmed
Template 1***	ptp01	As Programmed
Template 2***, etc	ptp02, ptp..	As Programmed

* The “x” character in a code represents the number of the internal scale from which data will come (unless otherwise noted). Number 1 represents internal Scale A, 2 represents internal Scale B, and 5 represents scale E, which is the summing scale. For example, to print the scale ID for scale A, the field code is “cs118.”

** pb = pushbutton tare, kb = keyboard (preset) tare.

† Refer to the section entitled Configure Literals Sub-block in the Configure Memory program block later in this chapter for more information on entering literals.

‡ Refer to the section entitled Configure Prompts Sub-block in the Configure Memory Program Block later in this chapter for more information on entering prompts.

*** Using a template field code within a template will insert the entire template into the output.

[1] Updated only at “print” time.

Although the Weight Data field table shows codes in lower case, the JAGXTREME terminal accepts field codes entered in upper or lower case.

Weight Data Field	Field Code*	Length
Gross WT.	wtx01	12 A/N
Tare WT.	wsx02	12 A/N
Net WT.	wtx02	12 A/N
WT. Units	wtx03	2 A/N
Auxiliary Gross WT.	wtx04	12 A/N
Auxiliary Tare WT.	wsx03	12 A/N
Auxiliary NetWT.	wtx05	12 A/N
Auxiliary WT. Units	wtx06	6 A/N
Scale Mode (Gross/Net)	wsx01	1 A/N (G or N)
Custom Unit Conversion Factor	csx03	8 A/N
Custom Unit Name	csx02	6 A/N

* The "x" character in each code represents the number of the internal scale from which data will come (unless otherwise noted). Number 1 represents internal Scale A, 2 represents internal Scale B, and 5 represents scale E, which is the summing scale. For example, to print the displayed gross weight for scale A, the field code is "wt101."

When calculating the number of elements in the template, the individual ASCII characters and special ASCII characters take up one character each. CR/LF and repeat characters take up six characters each.

CHAR refers to normal printable ASCII characters and CR/LF (carriage return and line feed) characters. You can enter ASCII characters from the remote QWERTY keyboard or the JAGXTREME terminal keypad. CR/LF makes terminating a printed line faster than selecting each character individually. It also allows quick addition of multiple new lines to advance to the end of the page or to position a line on a page. To choose CR/LF as a character, press SELECT at the **Character?** prompt.

Refer to Appendix 1 for a list of special characters and their decimal equivalents.

SPEC CHAR refers to "special" control characters that are not printable ASCII characters such as ASCII SO (shift out - 0E hex) which may be used for printer control. Special characters include lower case letters and various punctuation not available on the standard JAGXTREME terminal keypad. Use the JAGXTREME terminal's SELECT and ZERO keys to scroll through the list of these characters and choose a character, or use the numeric keys to enter the decimal value of any special character between 0-255.

Formatting options allow you to customize the appearance of printed data and helps align data on the page. You can also limit the data field width which can help to eliminate unwanted characters.

At the **Format?** prompt, select the data position (justification) and field width. If field width is less than the code length default specified in the Field Code tables (above), characters will be stripped off automatically. Justification choices include:

Format options Left, Center, and Right use more memory than Default. Each justification takes up six characters in the template.

- **DEFAULT** prints data as defined by METTLER TOLEDO default.
- **LEFT** prints data left justified within the field width. At the **Field Width?** prompt, enter the number of characters to define the field width.
- **CENTER** prints data centered within the field. At the **Field Width?** prompt, enter the number of characters to define the field width.
- **RIGHT** prints data right justified within the field. At the **Field Width?** prompt, enter the number of characters to define the field width.

When the element is viewed on the lower display, the data is shortened to fit in the display area. The following examples illustrate the displayed data format.

Example 1: /wt101 L 15 where:

"/" indicates a JAGXTREME Data Field. The other possibility is "A" for ASCII character.

"wt101" is the gross weight field code for Scale A.

"L" indicates the field is left justified. "R" means right, "C" means center.

"15" is the specified field width.

Example 2: A 'G' 001 where:

"A" indicates an ASCII character. The other possibility is "/" for a JAGXTREME terminal Data Field.

"G" is the ASCII character selected.

"001" is the quantity of the "G" character to be transmitted. Printing multiple characters is a quick way to add spacing or create custom printouts. For example, multiple underscores (_) can create a signature line.

Print test allows you to check your data output without exiting the template sub-block.

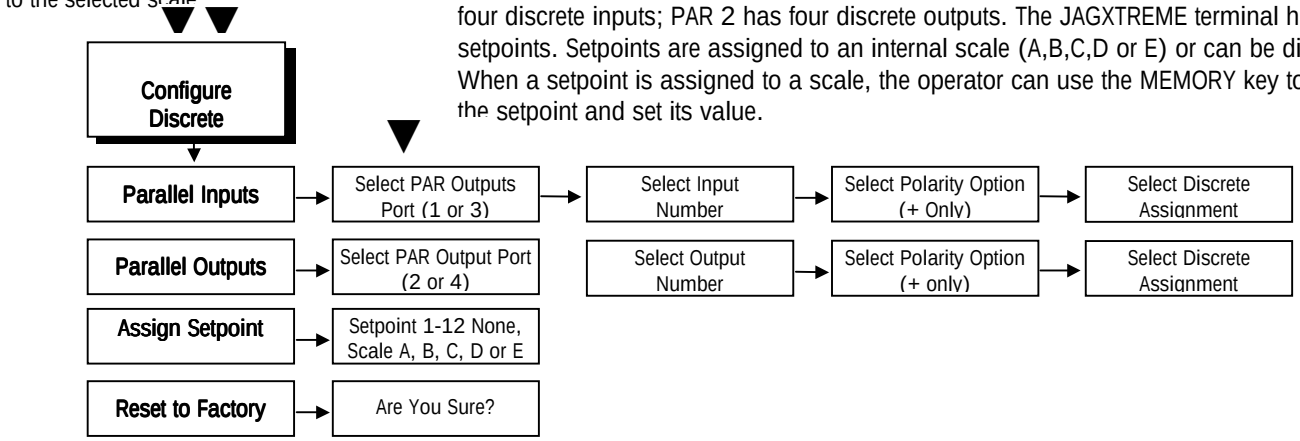
Print template gives a hard-copy record of the template configuration that can be useful for "debugging" a format as you configure the template.

1. At the **Print Test?** prompt, select **Y(es)** or **N(o)** to initiate or skip a test print of the template. If **Y(es)**, the data defined by the template will be output to the first COM port selected for Demand Mode.
2. At the **Print Temp?** prompt, select **Y(es)** or **N(o)** to print the template elements. If **Y(es)**, template elements are output in the shortened format described above to the first COM port selected for Demand Mode.
3. At the **Finished?** prompt, select **Y(es)** if you are finished or **N(o)** to continue editing.
4. Continue to the Reset to Factory sub-block or exit setup mode.

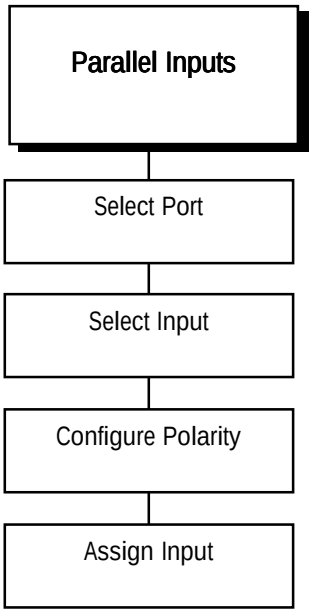
Configure Discrete Program Block

The Configure Discrete program block lets you configure inputs and outputs for PAR 1 and PAR 2 ports. (PAR 3 and PAR 4 are available if an optional Multifunction PCB is installed). This program block also lets you control the terminal's setpoints. PAR 1 has four discrete inputs; PAR 2 has four discrete outputs. The JAGXTREME terminal has 12 setpoints. Setpoints are assigned to an internal scale (A,B,C,D or E) or can be disabled. When a setpoint is assigned to a scale, the operator can use the MEMORY key to access the setpoint and set its value.

The setpoints that are available correspond to the selected scale



1. Discrete Inputs Sub-block

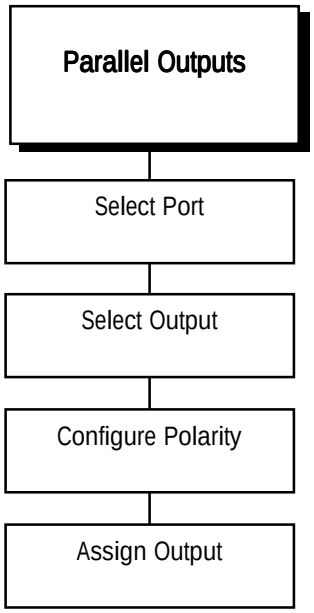


The Discrete Inputs sub-block lets you configure each of the four discrete inputs through PAR 1 (and an additional 8 on PAR 3 if an optional Multifunction PCB is installed). To configure inputs:

1. Press ENTER at the **Config Discrete** prompt and again at the **Parallel Inputs** prompt.
2. At the **Port?** prompt, select PAR 1 or PAR 3.
3. At the **Discrete?** prompt, select the specific input number (1 through 4 for PAR 1; 1 through 8 for PAR 3) to configure.
4. At the **Polarity?** prompt, select the input polarity option that defines the input active state. Options include:
   - **Positive (+)** —The assigned action will take place when the input IN 1-12 is grounded to the GND terminal on PAR 1 (or PAR 3).
   - **Negative (–)** —The assigned action will take place when the connection between the GND terminal on PAR 1 or PAR 3 and the input IN 1-12 is open.
5. At the **Assign?** prompt, select the action corresponding to the input you are configuring. The assigned action will happen when the input becomes active.
   - **Tare**—causes the terminal to tare a load on the scale when the input is active.
   - **Clear**—causes the terminal to clear the scale to gross zero when input is active.
   - **Print**—initiates a print command when the input is active.
   - **Zero**—causes the terminal to zero the scale when the input is active.
   - **Pri Unit**—changes the weight unit to the primary unit when the input is active.
   - **Sec Unit**—changes weight unit to secondary unit when the input is active.
   - **Sw Units**—toggles between the primary and secondary weighing units when the input is active.
   - **Sel Scale**—causes the terminal to display the second scale data (from scale A or B) when the input is active.
   - **Sel Key**—corresponds to pressing SELECT when the input is active.
   - **Escape**—corresponds to pressing ESCAPE when the input is active.
   - **Enter**—corresponds to pressing ENTER when the input is active.
   - **Cust_Prt (1 through 5)**—initiates a command to print the contents of the selected template when the input is active.
   - **Blank Display**—puts dashes in upper display.
   - **DisSetup**—disables Setup Entry.
   - **DisKeyPad**—disables Keypad.
   - **Prompts**—start prompts remotely.
   - **None**—assigns no function to the input when it is active.
6. At the **Scale?** prompt, press SELECT to choose the scale from which discrete data will come. Options include:
   - Active—the scale selected during normal operation
   - A—Scale A
   - B—Scale B
   - C—Scale C
   - D—Scale D
   - E—Summing

7. When you have finished configuring the first input assignment, JAGXTREME terminal returns to the **Port?** prompt where you can repeat steps 2 through 5 for each additional input you wish to configure.
8. When you are finished configuring all input assignments, at the **Port?** prompt, press ESCAPE to return to the **Parallel Inputs** prompt. Press SELECT to display the **Parallel Outputs** prompt and continue.

2. Discrete Outputs Sub-block



The Discrete Outputs sub-block lets you configure each of the four discrete outputs through PAR 2 (and an additional eight outputs for PAR 4 if an optional Multifunction PCB is installed).

To configure outputs:

7. Press ENTER at the **Parallel Outputs** prompt.
8. At the **Port?** prompt, select PAR 2 or PAR 4 depending on the port you wish to configure.
9. At the **Discrete?** prompt, select the specific output number (1 through 12) to configure.
10. At the **Polarity?** prompt, select the output polarity option that defines the output active state. Options include:
11. **+ only—**in the active state, the output is actually switched to ground internally showing 0 VDC and supplying a ground as an output.
12. At the **Assign?** prompt, select the output action corresponding to the output you are configuring. The condition is existing when the output becomes active. Options include:
    - **Net Gross—**output is active when the JAGXTREME terminal is in the net mode.
    - **Zero—**output is active when the displayed weight of the scale is within ± 0.25 increment of gross zero.
    - **Motion—**output is active when the terminal is experiencing a motion condition.
    - **Over Cap—**indicates weight on the scale exceeds the calibrated capacity when the output is active.
    - **Undr Zero—**indicates the JAGXTREME terminal is displaying weight that is below gross zero when the output is active.
    - **Setpoint—**indicates weight on the scale has reached a predetermined target weight.
    - **None—**assigns no function to the output when it is active.

Dribble value is equal to the target value minus the preact and dribble value.

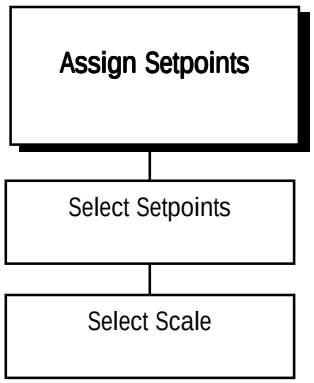
If Setpoint is Selected

1. At the **Setpoint?** prompt, select the particular output setpoint (1 through 12) you wish to configure.
2. At the **Out?** prompt, select the desired setpoint function. Options include:
   - **Feed**—the output turns the feeder off when weight on the scale reaches a predetermined cutoff value.
   - **Fast Feed**—the output controls the transition from fast to slow speed in dual-speed batching applications.
   - **Tolerance**—the output indicates whether residual weight on the scale is within a predetermined tolerance value. Please refer to the section entitled Memory Key Operations in chapter 4 for more information.

If An Assignment Other Than Setpoint is Selected

1. At the **Scale?** prompt, select the scale to which the output refers (Scale A, Scale B, Scale C, Scale D or Summing Scale E).
2. When you have finished configuring the first output assignment, JAGXTREME terminal returns to the **Port?** prompt where you can repeat steps 2 through 5 for each additional output you wish to configure.
3. When you are finished configuring all output assignments, at the **Port?** prompt, press ESCAPE to return to the **Parallel Outputs** prompt. Press SELECT to display the **Assign Setpoints** prompt and continue.

3. Assign Setpoints Sub-block



This sub-block lets you assign the terminal's setpoints to a scale or to disable setpoints.

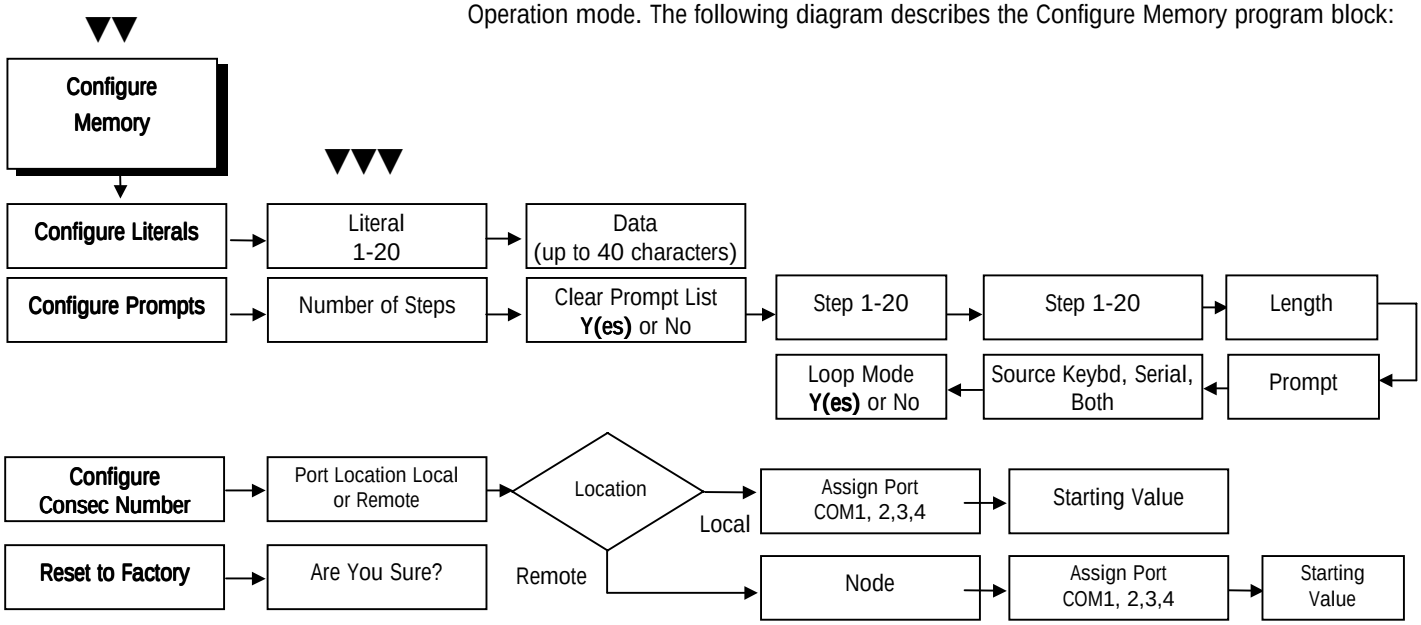
To configure setpoints:

1. Press ENTER at the **Assign Setpoints** prompt.
2. At the **Point?** prompt, select the setpoint you wish to configure (1 through 12).
3. At the **Scale?** prompt, select Scl A, Scl B, Scl C, Scl D, Scl E, or None to assign the setpoint selected in step 2 to scale A-D, summing scale, or to disable the setpoint (none).
4. At the **Name?** prompt, use the numeric keys to enter a description for this setpoint. Please refer to the section entitled Alphabetical and Special Character Entry in Chapter 4 for more information on entering alphanumeric characters.
5. At the **Source?** prompt, select a scale reference to which the setpoint will respond. Options include:
   - **Net**—the net weight of the selected scale.
   - **Gross**—the gross weight of the selected scale.
   - **Rate**—the calculated rate of weight change over a predetermined period of time as configured in the Alternate Weight Units sub-block.
6. At the **Type?** prompt, select the setpoint operation condition. Options include:
   - **Fill**—if the setpoint will work when weight on the scale is increasing.
   - **Discharge**—if the setpoint will work when weight on the scale is decreasing.
7. When you have finished assigning the first setpoint, the JAGXTREME terminal returns to the **Point?** prompt where you can repeat steps 2 and 3 for each additional setpoint you wish to assign.

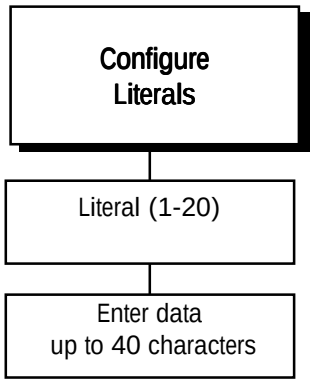
8. After you finish assigning all setpoints, at the **Point?** prompt press ESCAPE to return to the **Assign Setpoints** prompt. Press ESCAPE to return to the **Config Discrete** prompt. Then press SELECT to continue to the Configure Memory program block.

Configure Memory Program Block

This program block lets you configure literals, prompt lists, and consecutive numbers. These items are accessed when an operator presses the MEMORY key in Normal Operation mode. The following diagram describes the Configure Memory program block:



1. Configure Literals Sub-block

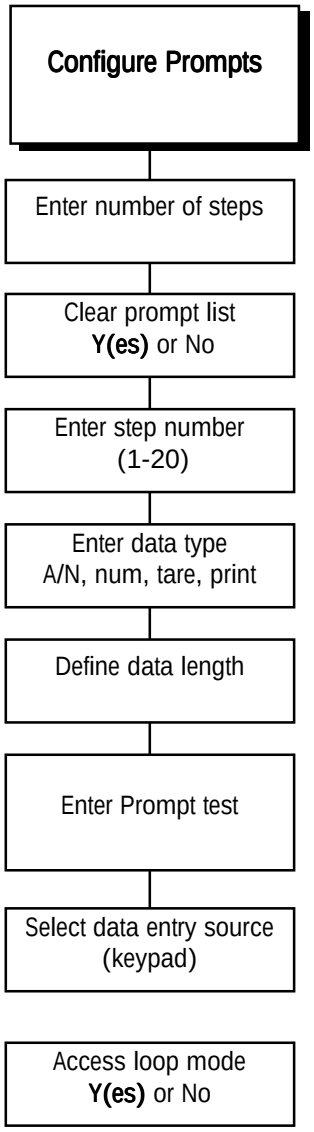


Literals are text strings, such as site name or address, that can be printed in a template. They can be up to 40 characters in length and are referenced by a field code (see the Configure Template Sub-block in this chapter). You can program up to 20 literals.

To configure literals:

1. Press ENTER at the **Config Literals?** prompt to open the sub-block.
2. At the **Literal? 0** prompt, enter a number for the literal you are creating or editing (01-20).
3. At the **Data?** prompt, enter the text for the literal. You can enter up to 40 alphanumeric characters. To enter lowercase letters and characters other than those on the JAGXTREME terminal keypad, you will need a QWERTY keyboard. Repeat steps 2 and 3 for each literal you wish to configure.
4. Press ENTER to continue to the next sub-block or ESCAPE to exit the setup mode.

2. Configure Prompts Sub-block



A prompt list displays written cues for an operator to perform a task while in Normal Operation mode. You can include up to 20 steps in a prompt list.

1. Press ENTER at the **Config Prompts?** prompt to open the sub-block.
2. Press ENTER at the **N(o) of Steps** prompt. This number tells you how many steps are in the current prompt list.
3. At the **Clr Prmpt Lst?** prompt, select **Y(es)** if you wish to clear the existing prompt list and reset the step number to 0, or select **N(o)** if you want to edit or add steps in the existing prompt list.

   If Y(es), at the **Are You Sure?** prompt, select **Y(es)** or **N(o)** to clear or keep the current prompt list.
   If N(o), at the **Step 1** prompt, begin entering data. If you are editing an existing prompt list, you must scroll through each step in the list to get to the desired step you wish to edit or create.
4. At the **Data Type?** prompt, select the type of data that will be entered by the operator in response to the prompt. Choices include:

Option	Data Type	Max. Length
A/N	Alpha-numeric	40 characters
Num	Numeric	8 numbers
Tare	Tare Weight	N/A
Print	N/A	N/A

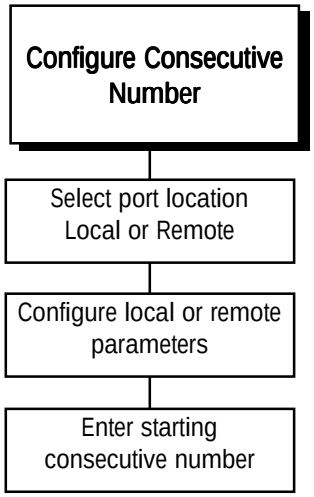
Numeric data type prohibits the operator from entering anything other than numbers or a decimal point. Tare data type allows a preset (keyboard), or pushbutton tare entry. Print data type causes a print output to occur when the operator presses ENTER at a print step in the template. If no prompt is entered, print output will occur automatically.

1. At the **Length?** prompt, enter the maximum number of characters that the operator will enter in response to the prompt according to the type of data selected above.
2. Press ENTER at the **Prompt?** prompt, then input the actual text for the operator prompt (up to 16 characters). Press ENTER to accept the text after you finish keying the string.
3. At the **Source?** prompt, select the entry source for the data. Options include:
   - **Serial**—Data input will be from a JAGXTREME terminal serial port such as from a bar code reader
   - **Kybd**—Data input will be from the JAGXTREME keypad or an external PC keyboard
   - **Both**—Data input will be from a keyboard or serial port source
   - METTLER TOLEDO recommends using both to accommodate input regardless of specific source.

If Serial or Both

1. At the **First Character?** prompt, enter the number of the first character position to be used by the JAGXTREME terminal for the prompt response. For example, consider the prompt response "1521" that is received in the following serial input string: <STX> <SP> <SP> <SP> 1521 <CR>
2. The first character of the response ("1") is the fifth character in the string, so you would enter "5" at the **First Character?** prompt. Refer to Appendix 1 for more information.
3. At the **More Steps?** prompt, select **Y(es)** or **N(o)** if more steps will be entered in the prompt list. If **Y(es)**, the terminal automatically increments to the next step.
4. At the **Loop Mode?** prompt, select **Y(es)** or **N(o)** to enable or disable the prompt list loop mode. This feature causes the JAGXTREME terminal to remain in the prompt list (in normal operating mode) until the operator presses ESCAPE.
5. Continue to the next sub-block or press ESCAPE to exit setup mode.

3. Configure Consecutive Numbering Sub-block



Consecutive numbering is used for sequencing purposes. The JAGXTREME terminal automatically increments the number from a defined starting point.

To configure consecutive numbering:

1. Press ENTER at the **Configure CN?** prompt to open the sub-block.
2. At the **Port Loc?** prompt, select the port location through which data will flow triggering the next consecutive number. You must select a port configured for demand output from this specific JAGXTREME terminal. Choose local or remote.

   #### If Local

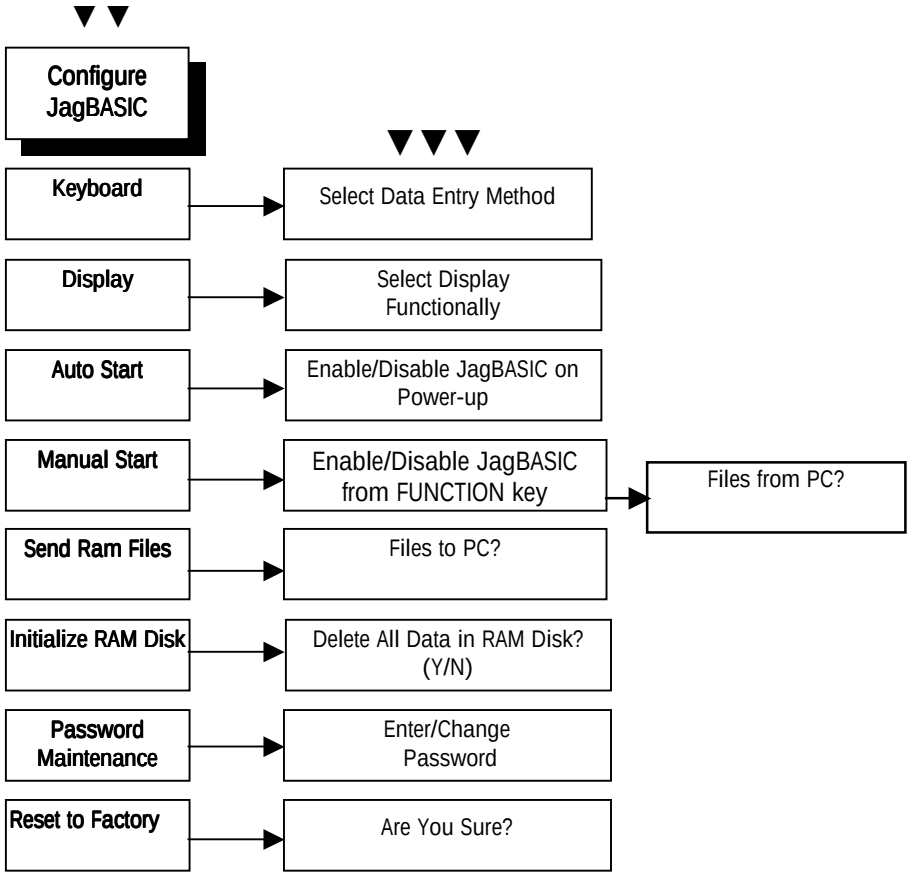
   At the **Assign Prt?** prompt, select the appropriate COM port.

   #### If Remote

   At the **Node?** prompt, select the appropriate remote JAGXTREME terminal (1-6), then select the COM port at the **Assign Prt?** prompt as for local.
3. At the **Start?** prompt, enter the first consecutive number to be used (0-99999999) after a reset.
4. Press ENTER to continue to the next sub-block or press ESCAPE to exit setup mode.

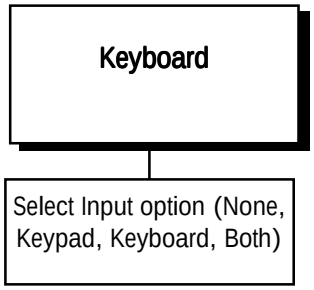
Configure JagBASIC Program Block

This sub-block details how to configure JagBASIC.



Enter the JagBASIC password to access the program block. If none has been entered since the last Master Reset, press ENTER to access the program block.

1. Keyboard Sub-block



The Keyboard sub-block lets you select the type of device that will be used to input data to JagBASIC at an input or inkey prompt. The selected device is also used for BASIC command line mode.

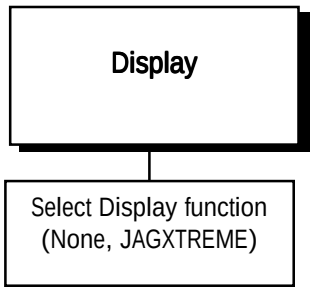
To configure the Keyboard sub-block:

1. Press ENTER at the **Config JagBASIC** prompt to access the program block.
2. Press ENTER at the **Keyboard** prompt, then select the desired input device:
   - **None—N(o)** keyboard input is required. This option is used with programs designed to operate in the background and monitor data input and output without operator intervention.
   - **Keypad—**The JAGXTREME terminal keypad will be used for JagBASIC input **and** standard JAGXTREME terminal functions.

- **Kboard**—An optional PC-type QWERTY keyboard will be used for JagBASIC input **and** standard JAGXTREME terminal functions.
- **Both**—The JAGXTREME terminal keypad and an optional keyboard will be used for JagBASIC input.
- If **Both** is selected, standard terminal functions (including setup) cannot be accessed with the keyboard. If you need to access setup with both keyboard and keypad selected, turn switch 2 off, then power up to enter setup and change this option to Keyboard. Turn switch 2 on when finished.

3. Press ENTER to continue to the next sub-block or ESCAPE to exit the setup mode.

2. Display Sub-block

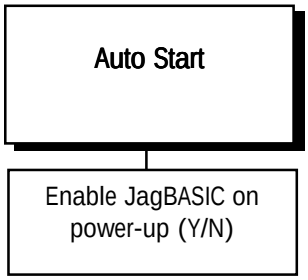


This sub-block lets you select the display area to be used by a Jag BASIC program when a Print statement is executed.

To configure the sub-block:

1. Press ENTER at the **Display** prompt, then select the display area for JagBASIC output:
   - **None**—JagBASIC output is not displayed.
   - **JAGXTREME terminal**—The JAGXTREME terminal lower display area shows JagBASIC output **and** standard JAGXTREME terminal output.
2. Press ENTER to select the display option and continue to the next sub-block.

3. Auto Start Sub-block

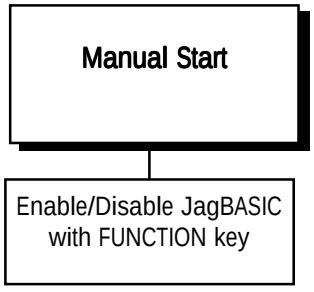


The Auto Start sub-block lets you start the JagBASIC program (file1.bas) automatically on power-up.

To configure the sub-block:

1. Press ENTER at the **Autostart** prompt, then press SELECT to display **Y(es)** or **N(o)**. If enabled **Y(es)**, the JagBASIC program will automatically start each time power is applied to the JAGXTREME terminal.
2. Press ENTER to select the auto start option and continue to the next sub-block.

4. Manual Start Sub-block

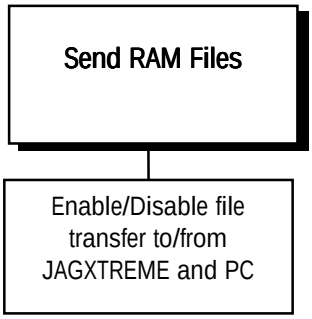


The Manual Start sub-block lets you configure JagBASIC as an operation associated with the FUNCTION key.

To configure the sub-block:

1. Press ENTER at the **Manual Start** prompt, then press SELECT to display Enable or Disable. If enabled, JagBASIC programs can be started manually when the operator presses the FUNCTION key.
2. Press ENTER to select the manual start option and continue to the next sub-block.

5. Send RAM Files Sub-block



Refer to the JagBASIC Programmer's Guide for more details.

This sub-block works with the JagBASIC send and receive programs that must be installed in your PC and lets you configure file transfer to and from the terminal and your PC. File transfer is initiated and transferred in setup mode.

Communications must be established between the PC and JAGXTREME terminal to transfer files. If communications are not established, the terminal will time-out and return to the beginning of this sub-block.

To transfer files:

1. Press ENTER at the **Send RAM Files** prompt.
2. At the **Files to PC?** prompt, select **Y(es)** if you want to enable file transfer from the JAGXTREME terminal to your PC, or **N(o)** if you do not want file transfer in this direction.

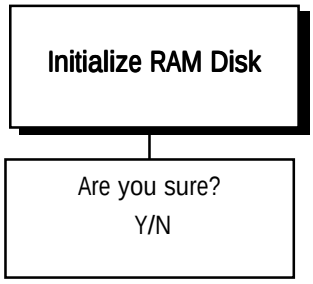
   If Y(es) is Selected

   - At the **Are You Sure?** prompt, select **Y(es)** to enable the JAGXTREME terminal to transfer files from its RAM disk to your PC. If you respond **N(o)** to this prompt, JAGXTREME terminal prompts **Files From PC?**

   If N(o) is Selected

   - At the Files From PC? prompt, select **Y(es)** to enable file transfer from your PC to the JAGXTREME terminal, then respond **Y(es)** at the Are You Sure? prompt. The terminal displays "Recving from PC."
3. Press ENTER to continue to the next sub-block.

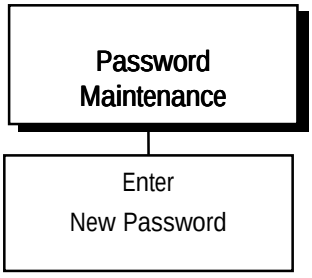
6. Initialize RAM Disk Sub-block



This sub-block lets you delete all files in the JAGXTREME terminal's RAM disk and initialize it for new files.

1. Press ENTER at the **Init RAM Disk?** prompt.
2. At the **Are You Sure?** prompt, select **Y(es)** to delete the RAM disk files. Select **N(o)** if you do not wish to erase all files on the RAM disk at this time.
3. Use caution if you select **Y(es)** to delete all RAM disk files. These files cannot be recovered once they are deleted.
4. Press ENTER to continue to the next sub-block.

7. Password Maintenance Sub-block



The Password Maintenance sub-block lets you enter a password that must be used each time the JagBASIC program block is accessed. The password secures the JagBASIC programs against unauthorized access and changes.

To configure the sub-block:

1. Press ENTER at the **Password Maint** prompt.
2. At the **Passwd?** prompt, enter a unique password (up to eight characters).
3. Press ENTER to accept the password and continue to the next sub-block.

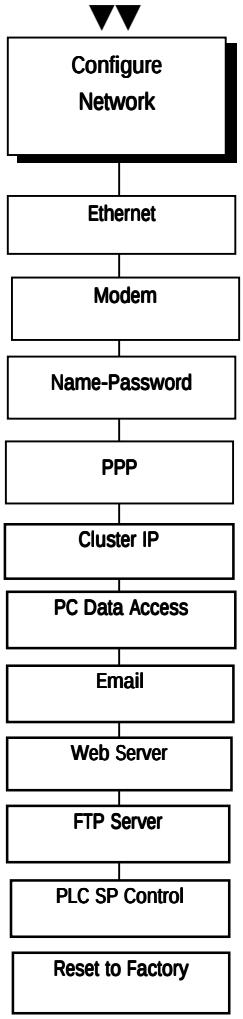
After exiting the Configure JagBASIC program block the first time, you must use the password each time you reenter the program block.

METTLER TOLEDO recommends that you distribute the password to only those who need access to the JagBASIC program block.

Please record the password and keep it in a secure location. If the password is lost, the only way to access the JagBASIC program block again is by performing a Master Reset which will return **all** JAGXTREME terminal configuration parameters to default values and clears the RAMDISK which stores any JagBASIC programs.

Configure Network Program Block

The JAGXTREME terminal can be configured as a network device on a local area network (LAN). The Network Interface block lets you configure the network port and identify which terminal nodes it may access. The following diagram describes this block:



Network Overview

Before configuring the Network program block, you should review the following information which provides an overview of the terminology and concepts involved in networking.

TCP (Transmission Control Protocol) is a robust communication protocol that provides high quality, in-sequence, and error-free service. TCP provides a means of connecting multiple computers together and exchanging data between them. TCP could be considered the pipeline used to transport other protocols including SMTP and FTP.

IP (Internet Protocol) is a low-level protocol that routes messages through a network. TCP and all other higher-level protocols use IP. IP packets are not guaranteed to arrive in sequence and rely on TCP to rebuild them in sequence.

SMTP (Simple Mail Transfer Protocol) is a TCP/IP protocol used in sending and receiving e-mail.

FTP (File Transfer Protocol) is a standard Internet protocol. It is the simplest way to exchange files between computers on the Internet. Like the Simple Mail Transfer Protocol (SMTP), which transfers e-mail, FTP is an application protocol that uses the Internet's TCP/IP protocols. FTP is commonly used to transfer program and data files from the computer that acts as their server for everyone on the Internet. It's also commonly used to download programs and other files to your computer from other servers.

Web Server is a computer that delivers or serves up web pages. Every web server has an IP address and possibly a domain name. Any computer can be turned into a web server by installing server software and connecting the machine to the Internet. The web server uses the Hypertext Transfer Protocol (HTTP), which transfers displayable web pages and related files.

PPP (Point-to-Point Protocol) is a method of connecting a computer to the Internet, typically by using a serial port. This protocol is responsible for handling modem dial up/answer and remote host login.

Network refers to a group of two or more computers that are linked together. There are many types of networks, including:

- **Local area networks** (LAN): The computers are geographically close together and are typically housed in the same building.
- **Wide-area networks** (WANs): The computers are farther apart and are connected by telephone lines, fiber optic cables, or radio waves.

In addition to these types, the following characteristics are used to categorize different types of networks:

Topology: The geometric arrangement of a computer system. Common topologies include a bus, star, and ring.

Protocol: The protocol defines a common set of rules and signals that computers on the network use to communicate. One of the most popular protocols for LANs is called Ethernet. Another popular LAN protocol for computers is the token-ring network.

Architecture: Networks can be broadly classified as using either a peer-to-peer or client/server architecture.

Nodes: Computers on a network are sometimes called nodes.

Servers: Computers and devices that allocate resources for a network are called servers.

Clients: Computers and devices that use these resources are called clients.

Networking features supported in the JAGXTREME terminal:

- Clustering
- Embedded Web Server
- FTP Server
- SMTP Client
- TCP/IP
- Ethernet
- PPP/Modem
- JagBASIC Client and Server Application Interface

General Networking Considerations

IP addresses

WARNING: If your JAGXTREME terminal(s) is/are connected to a local area network (LAN) having other devices already connected, do not choose IP addresses without consulting with the owner of the LAN. Serious network service problems can occur if you inadvertently choose an IP address that is already in use.

IP addresses are 32-bit numbers that are often broken down for easier reading into octets. An octet is a 3-digit number between 0 and 255. An IP address contains 4 octets. The network identifier is typically defined in the first 3 octets. The last octet is usually an identifier of the individual node.

A unique IP address is required for each individual node on the network. For example, when a JAGXTREME terminal uses both PPP and TCP/IP protocols, the IP addresses must be unique for both. These IP addresses must also be unique to the other nodes such as computers, other JAGXTREME terminals or other devices.

An end user must configure TCP/IP with the following information:

- The IP address.
- The Subnet Mask. This defines how much of the IP address is used for identifying the local network and how much of the IP address is used to identify the node on that network.

Example: A JAGXTREME terminal has the following IP address: 130.132.59.234. If the first three bytes or octets designate the Local Area Network (LAN) address, then the Subnet Mask must be defined as 255.255.255.0 (255 is the largest byte value and represents the number with all bits turned on).

JAGXTREME terminal's IP address: 130.132.59.234

Subnet mask for the JAGXTREME and all other members of its LAN on: 255.255.255.0

The Computer's IP address: 130.132.59.233

The subnet denotes that any other machine with an IP address beginning 130.132.59.* is on the same LAN, so messages are sent to it directly. Any IP address beginning with a different value can only be accessed indirectly by sending the message through a gateway or router (which ties the JAGXTREME terminal's LAN to other LAN's).

Clustering JAGXTREME Terminals

Clustering is a means of networking up to six individual JAGXTREME terminals together on a peer-to-peer Ethernet network. This is accomplished by assigning each JAGXTREME terminal an IP address and a terminal number.

Cluster IP Setup

You can configure the Cluster IP sub-block to allow one or more JAGXTREME terminals to act as a console terminal for the other terminals in a cluster. It is possible to have more than one network console in a cluster. Up to six (6) terminals can be members of a cluster. Note: Each terminal must have a unique IP address for the terminals within the cluster to communicate properly.

Hardware Requirements:

- JAGXTREME terminal(s)
- Ethernet cable(s)
- Ethernet hub(s)

Terminal Setup:

1. Enter setup, select **Network** then press ENTER.
2. Select **Cluster IP** and press ENTER.
3. At the **Net Console? N** prompt, press ENTER if this terminal is not the network console of a JAGXTREME cluster (although it might participate in a cluster for another console device). Select Y(es) if this device will be the network console for a JAGXTREME cluster. Selecting Y(es) at the Net Console prompt enables the JAGXTREME terminal to communicate with and have full access to the other terminals in the cluster.
4. At the **This Term?** prompt, use the numeric keys to enter a cluster ID number (1-6) for this JAGXTREME terminal.
5. At the **Terminal #? Y** prompt, press ENTER to confirm that you are assigning one of the five (5) other terminals to this device as a network console. Repeat steps 2 and 3 as needed for the other terminals. Or, select **N(o)** to skip this section.
6. At the **IP? 111111111111** prompt, enter the permanent IP address of each JAGXTREME terminal assigned to the console. Enter the address in decimal octets but without decimal points. Press enter.
7. Repeat this process for each terminal in the cluster. Make sure that each terminal has a unique IP address, perhaps by incrementing the last digit in the number by 1 so that each terminal has a unique IP address. Cycle power on the JAGXTREME terminal after setting the IP addresses.

Note: In order for two JAGXTREME terminals to talk to each other in a cluster, they both must be setup with each other's IP address in the cluster setup.

Example: The IP address of the first JAGXTREME terminal in a cluster of three JAGXTREME terminals is 200.200.200.201. Increment the last digit in this number (in this example, the 1) for the next terminal in the cluster so that its IP address is 200.200.200.202. Increment the last digit by 1 again so that the IP address for the third JAGXTREME terminal is 200.200.200.203. Each of the three terminals now has a unique IP address.

Cluster IP Example Setup Chart

Description	Term #1	Term #2	Term #3	Term #4	Term #5	Term #6	Network Hub
Standard Ethernet RJ-45							
IP Address	200.200.200.201	200.200.200.202	200.200.200.203	200.200.200.204	200.200.200.205	200.200.200.206	N/A
Sub-Net Mask	255.255.255.000	255.255.255.000	255.255.255.000	255.255.255.000	255.255.255.000	255.255.255.000	N/A
Gateway	000.000.000.000	000.000.000.000	000.000.000.000	000.000.000.000	000.000.000.000	000.000.000.000	N/A
Net Console	Y	Y	Y	Y	Y	Y	N/A
Web Server	Y	Y	Y	Y	Y	Y	N/A
PC Data Access	Y	Y	Y	Y	Y	Y	N/A

PC Data Access

PC Data Access gives PC applications access to the JAGXTREME Shared Data through the OPC Server or the JagXAPI.dll interfaces. The physical connection is an Ethernet connection. It also allows access of scale information via MT Connections. For additional information consult the MT Connections documentation. To enable this feature, enter setup. At the **Config Network** display, select **PC Data Access**, press ENTER, and then choose Y(es) at the **Host Node?** prompt.

PPP Configuration

PPP (Point to Point Protocol) can be used to configure the JAGXTREME terminal to act as a web or FTP server to any PC using a modem. This feature is available in all JAGXTREME terminals. This section provides information for setting up a PPP connection that provides remote access to the JAGXTREME terminal via a PC using a modem for communication. When communication is established, the embedded web server and FTP server will be available for remote setup and troubleshooting.

Hardware Requirements:

- JAGXTREME terminal
- PC with a modem
- Serial modem for the JAGXTREME terminal
- Modem cable (Available from METTLER TOLEDO, P/N 0900-326-00A)

Note: The JAGXTREME terminal communicates at 19,200 baud except if it contains non-DMA interface boards. If communication problems are encountered, upgrade the interface boards or set the modem down to 9600 baud.

Requirements for modem:

- Serial external types can only be installed on COM1 or COM2 of the JAGXTREME terminal.
- The modem must be able to retain saved settings on power down.
- The modem must be able to auto answer.
- The modem must be able to set a maximum baud rate of 19,200.
- The modem must be able to work with no flow control, or handshaking (TX, Rx, and Gnd only).

Wiring Considerations for the Modem

- The JAGXTREME terminal requires only Tx, Rx, and Gnd to communicate via modem.
- Most modems require handshaking lines to be tied together in order to communicate.
- For communication with most modems, RTS and CTS, and DSR and DTR must be tied together.
- METTLER TOLEDO offers the following serial modem cable: PN15904000A.

Setting up the PC:

Dial-Up Networking for Windows NT

1. TCP/IP must be installed on the computer. The Windows NT installation disk is required or the I386 directory must be available on the computer.
2. Subnet Mask for PPP/IP settings must match between the JAGXTREME terminal and the PC. If you are not sure how to assign a subnet mask, consult with your network administrator
3. If you are using Windows NT, remote access service must be installed. The Windows NT installation disk is required or the I386 directory must be available on the computer. Note that whenever you install networking protocols you should reinstall the current service pack.
4. Open Dial-Up Networking and create a new connection.
5. Choose a non-Windows NT Server.
6. Insert the appropriate area code and phone number to be dialed.
7. Choose **PPP protocol**.
8. Choose **no login script**.
9. Enter a unique IP address (unique to the JAGXTREME terminal and to the PC's normal IP address that is used for networking) Note that the first three octets should match the IP of the JAGXTREME terminal.
10. Leave the DNS and WINS servers at zero.
11. Click F**inish.**
12. Click on **More** and select **edit entry and modem properties**
13. Click security tab.
14. Choose **Accept any authentication** unless CHAP is configured in the JAGXTREME terminal then use **Accept only encrypted authentication**.

Dial-Up Networking for Windows 98

1. Dial-Up Networking and a modem must be installed.
2. Subnet Mask for PPP/IP settings must match in the JAGXTREME terminal and the PC. If you are not sure how to assign a subnet mask consult with your network administrator
3. Double-click on **My Computer** and open **Dial-Up Networking**.
4. Right-click on **Network Neighborhood** and select **Properties**.
5. Select **TCP/IP Dial-Up adapter** and select **Properties**.
6. Select the **IP address** tab and select **Specify an IP address**.
7. Enter **IP address**. (See below for example)
8. Enter **Subnet Mask**.
9. Double-click on **make new connection**.
10. Configure the modem under connection tab to work with your PC.
11. Enter the appropriate area code and phone number.
12. Click **Finish**.
13. Right-click on the **Connection** and select **Properties**.
14. Go to **Server Types** and choose **PPP: Internet, Windows NT Server, and Windows 98.**
15. Under advanced options, log on to network. **Enable software compression** should be checked.
16. Under allowed network protocols, only **TCP/IP** should be checked.
17. Click on **TCP/IP settings** and select **Specify an IP address** in the top field.
18. Enter in the IP address for your dial-up connection. This address should not match the IP address of the PPP connection on the JAGXTREME terminal. See the example provided below.
19. Choose **Server** assigned name server address.
20. **Use IP header** and **Use default gateway on remote network** should be checked.
21. Click **OK**.

Internet Explorer Configuration

1. Right-click on the **Internet Explorer** Icon and select **Properties**.
2. Choose the **Connection** tab.
3. Choose the **Dial-Up Connection** that you created. Make sure **Detect Proxy Settings** is not checked.
4. Type in the username and password that is configured in the JAGXTREME terminal and press **OK**.
5. Make this connection your default connection. This will automatically bring up this connection when Internet Explorer is launched. You can also choose to automatically dial, if desired.

6. By default, Internet Explorer will bring up your start up page. This can be changed in the general tab under **Properties** to bring up the JAGXTREME terminal to eliminate a connection timeout.
7. The JAGXTREME terminal will be browsed to by typing in the IP address in the URL window in Internet Explorer as shown: http:\\111.111.111.111. This would be for a JAGXTREME terminal with a PPP IP address of 111.111.111.111.

Note: You must have Internet Explorer 4.0 or higher.

JAGXTREME Setup:

1. A modem can only be installed on COM1 or COM2.
2. Enter setup and go to configure serial.
3. Press ENTER to **Configure Port**.
4. Press ENTER to **Select Port**.
5. Press ENTER to select **Local**.
6. Select either **COM1** or **COM2** and press ENTER.
7. Press ENTER to assign **Port Parameters**.
8. Select **19.2k** for baud rate and press ENTER.
9. Select **8** for data bits.
10. Select **None for Parity** and press ENTER.
11. Select **None for Flow**.
12. Press ENTER to **Add Connection**.
13. Select **PPP/Modem** for type and press ENTER.
14. Escape back to the **Exit Setup?** prompt.
15. Select **Config Network** and press ENTER.
16. Select **PPP,** enter IP address, and press ENTER.
17. Enter subnet mask at the **SM** prompt and press ENTER.
18. Enter gateway address at the **GW** prompt if the computer you are communicating with is not on the same LAN. The default is 000000000000 and will work on the same LAN. If you are unsure about gateway settings, consult your network administrator. Then press ENTER.
19. Enter a timeout and press ENTER. The timeout value is in seconds and ranges from 0-9999. The default is 600 and is recommended.
20. Select Y(es) or N(o) at the console log prompt and press ENTER. N(o) is the default and is recommended. When yes is chosen this allows the user to view a log file on a PC via a terminal emulation program. This feature is generally used for debugging communication problems. The data is available through the Demand Output for Scale A. By connecting to a terminal emulator such as Hyper-terminal the log both modems can be monitored.
21. The **cluster** prompt log will come up and can be configured. Refer to the cluster setup section of the manual to configure a cluster, if applicable.
22. After configuring clustering, go to **Network**, then **Modem** and select **Auto answer**.
23. Next, you can select to enable or disable **CHAP** (Challenge Handshake Authentication Protocol), and assign usernames and passwords. For more information on CHAP, consult your network administrator.

SMTP Setup

SMTP allows the terminal to send emails via an external modem or Ethernet connection to a dedicated mail server (on a computer network or on a standalone with a modem). If a modem is used, PPP must be configured in the terminal in order for the Email function to work.

Requirements for the Server:

- The server must have a mail server program that supports SMTP. The server must have a means (network or modem) of forwarding the Email to it's intended recipient.
- This feature requires an advanced knowledge of mail servers and networking and should be configured by a network administrator.

Setup in the Server:

The server setup is dependent upon the operating system and the Email server used. This should be handled by a network administrator.

Setup in the JAGXTREME Terminal:

1. Enter setup mode. Select **Config Network** and press ENTER.
2. Select **Email** and press ENTER.
3. At the **Enable Email** prompt, select **Y(es)** and press ENTER.
4. At the **IP** prompt, enter the IP address of the mail server and press ENTER.
5. At the **name** prompt, enter the name of your terminal and press ENTER.
6. At the **Addr** prompt, enter the Email address of the JAGXTREME terminal.
7. At the **Subj? Automated** prompt, press ENTER.
8. At the **TCP Port** prompt, enter the TCP port number. Note that the default is **25** and is the most the common setting for Email configurations. Consult your network administrator before changing this setting.
9. At the **Email Recip? 1** prompt, press ENTER.
10. At the **Addr?** prompt ,enter the Email recipient's address. Note: The JAGXTREME terminal and the recipient must have accounts already configured in the Email server in order to send Email from the JAGXTREME terminal.

Note: If problems are encountered with Email messaging, have a network administrator check the Email server setup and make any necessary corrections.

11. At the **Calib. Check** prompt, select **Y(es)** or **N(o**) and press ENTER. When enabled, this feature is used to automatically send an Email if a calibration check fails.
12. At the **Predict Fail?** prompt, select **Y(es)** or **N(o)** and press ENTER. When enabled, this feature allows POWERCELL scale interface users to automatically generate an Email based on the Predictive Failure Analysis settings in maintenance mode.
13. At the **Done** prompt, select **Y(es).**

Testing the Email

You can test the Email function in the diagnostics section.

1. Enter setup. Choose **Diagnostics** and press ENTER.
2. Select **Email** and press ENTER.
3. At the **Test Email?** prompt, select **Y(es)** and press ENTER to send a test message.
4. A message should appear that says **Email Msg Queued**. This indicates that the message has been sent from the JAGXTREME terminal.

FTP

FTP (file transfer protocol) is used to upload and download files to and from the JAGXTREME terminal. This feature can allow remote editing of JagBASIC programs and data acquisition of calibration check information. The FTP server in the JAGXTREME terminal can be accessed through most any FTP client. Typically, this is done via DOS prompt, Internet Explorer, or Windows PC FTP utility. The following commands are supported:

- dir
- send
- rec
- quit

Note that either a modem or Ethernet network can be used for FTP. If a modem is to be used, PPP must be configured prior to setting up FTP.

If you want to delete a file, you can go to the JagBASIC command line and type KILL "filename". If you want to delete ALL files, you can select INIT RAMDISK under the JagBASIC selection.

JAGXTREME Setup:

1. Enter setup. Select **Config Network** and press ENTER.
2. Select **FTP Server** and press ENTER.
3. At the **Enable FTP Ser** prompt, select **Y(es)** and press ENTER.

If you do not want anonymous login, you must setup a user and password in the JAGXTREME terminal. To log on, point the FTP client to the JAGXTREME terminal's IP address. Enter a name and password.

User and Password in the JAGXTREME

1. Enter setup. Select **Config Network** and press ENTER.
2. Select **Name-Password** and press ENTER.
3. At the **Action?** Prompt, select **Find Name** or **New Name** and press ENTER.
4. Enter a new name or select from the pre-defined names.
   - If a new name is chosen, enter the password and exit setup.
   - If a pre-defined name is chosen, select **Y(es)** to edit the password.
5. The other users should be deleted at this point in order to have a secure configuration.
6. Exit setup.

Embedded Web Server

Each JAGXTREME terminal includes an embedded web server. This tool provides access to the JAGXTREME terminal via an Ethernet/modem connection using a web browser. To access the embedded web server, either PPP or Ethernet access must be configured.

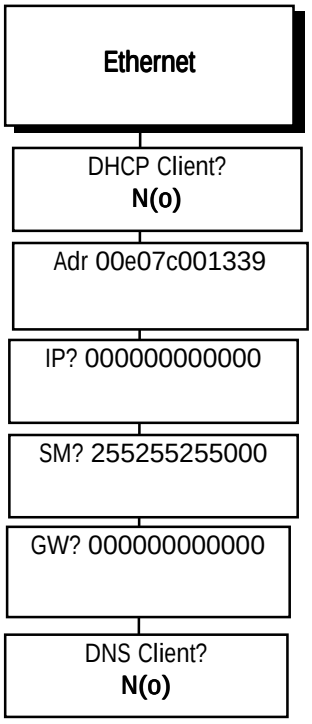
JAGXTREME Setup:

1. Enter setup. Select **Config Network** and press ENTER.
2. Select **Web Server** and press ENTER.
3. At the **Enable Web Server** prompt, select **Y(es)** and exit.
4. Make sure the JAGXTREME terminal has a unique IP Address and the correct Subnet Mask.

Browser Considerations:

- Must be Internet Explorer 4.0 or higher revision.
- Disable proxy server.
- Enable cookies.
- You can specify the address to bypass the proxy for the JAGXTREME terminal. If you are unsure about these settings consult with your network administrator.
- To connect to the JAGXTREME terminal, type in the IP address in the URL window and push ENTER. Example: http://146.207.105.206
- You can test communications by pinging the JAGXTREME terminal. From the DOS prompt type: PING xxx.xxx.xxx.xxx, where xxx.xxx.xxx.xxx is the IP address of the JAGXTREME terminal.
- Make sure a crossover Ethernet cable is used if you are connecting directly to the JAGXTREME terminal.
- Always ensure the JAGXTREME terminal has a unique IP address.

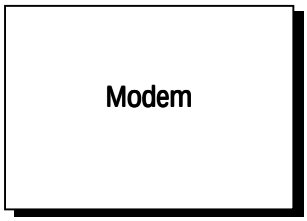
1. Ethernet



This sub-block lets you configure the TCP/IP Ethernet Address options. To configure this sub-block:

1. Press ENTER at the **Configur Network** prompt, then press ENTER again at the **Ethernet** prompt. The display will read **Adr 00e07coo1339**. This is the Ethernet MAC address entered at the factory. It cannot be modified in the field. Press ENTER.
2. At the **DHCP Client?** prompt, you must select **N(o)** to indicate that the JAGXTREME terminal will use the permanently assigned IP address, sub mask, and gateway address entered in the next steps. Do not select **Y(es)**. Press ENTER.
3. The display reads **IP? 111111111111**. This is the permanent IP address that will be used for the web server and for JagBASIC access to the terminal. Enter your desired IP address and press ENTER.
4. The display reads **SM? 255255255000**. This is the IP address sub-mask. Enter your desired sub-mask and press ENTER.
5. The display reads **GW? 000000000000**. This is the gateway IP address. Enter your desired gateway address (if any) and press ENTER.
6. At the **DNS Client?** prompt, select **N(o).** This indicates that the JAGXTREME terminal does not use Domain Name Server services.

2. Modem



If the JAGXTREME terminal is to be connected to a modem, the modem control configuration is done in this sub-block only. Use COM1 or COM2 to connect the modem.

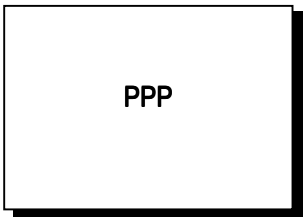
1. Press ENTER. At the **Auto-Dial?** prompt, enter **Y(es)** to enable automatic dial out by the JAGXTREME terminal. Enter **N(o)** to disable automatic dial and skip this section. Press ENTER.
2. **At the Number?** prompt, use the numeric keys to enter the phone number to dial, including access codes. Press ENTER.
3. At the **Name? ------** prompt, enter the user name for remote host login.
4. At the **Pswd? ----** prompt, enter the user password for remote host login.
5. At the **Auto-Answer?** prompt, select **Y(es)** to enable the JAGXTREME to automatically answer incoming modem calls. Select **N(o)** to disable auto-answer.
6. At the **CHAP Required? N** prompt, select **Y(es)** to enable CHAP password challenge. Select **N(o)** to disable CHAP and skip this section.
7. At the **Pswd?** prompt, enter password name.

3. Name-Password

This sub-block allows you to edit a list of six name-password pairs. The name-password pairs are used to authenticate access to the JAGXTREME terminal via the FTP server and the modem auto-answer.

1. At the **Action?Find Name** prompt, press ENTER to find an existing name-password pair or press SELECT to create a new pair.
2. If you press ENTER to find an existing name-password, the display reads **Name0 xxxxxxx**. Press ENTER. The display reads **This Name? N**
3. Press ENTER to confirm **N(o)** and return to the **Action?** prompt. Or, press SELECT for **Y(es)** then ENTER to edit this name.
4. If you selected to change the name, the display will read **Action? Change**. Press ENTER to change the name. The display will read **Pswd? Xxxxxxxxx**. Enter the new password here.

4. PPP

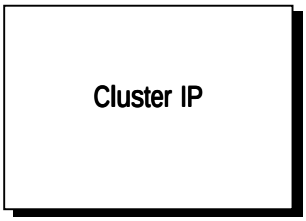


If the JAGXTREME terminal will use a serial port for network connection to a remote host machine, PPP must be configured here.

1. The display reads **IP? 000000000000.** This is the IP Address of the remote host. Press ENTER.
2. The display reads **SM? 255255255000.** This is the IP Address Sub-Mask of the remote host. Press ENTER.
3. The display reads **GW? 000000000000.** This is the Gateway IP Address.
4. At the **Timeout?** prompt, enter the timer value (in seconds). The JAGXTREME terminal will disconnect from a remote host after a timeout period with no activity on the connection.
5. At the **Secret?** prompt, enter a secret number for CHAP.

6. At the **Console Log? N** prompt, select **Y(es)** to enable session logging to the LPRINT device. This is useful for diagnosing a PPP setup problem. Select **N(o)** to disable session logging.

5. Cluster IP



Configuring the Cluster IP sub-block allows one JAGXTREME terminal to act as a console terminal for other JAGXTREME terminals. Up to six (6) terminals can be members of a cluster.

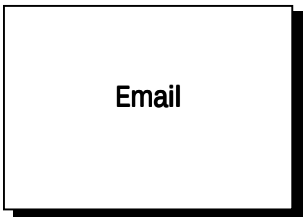
1. At the **Net Console? N** prompt, press ENTER if this terminal is not the network console of a JAGXTREME cluster (although it might participate in a cluster for some other network console device). Select **Y(es)** if this device will be the network console for a JAGXTREME cluster.
2. At the **This Term?** prompt, use the numeric keys to enter a cluster ID number (1-6) to this JAGXTREME Terminal.
3. At the **Terminal #n? Y** prompt, press ENTER to confirm that you are assigning one of five (5) possible other terminals to this device as a network console. Repeat as needed until completed with all other terminals. Select **N(o)** to skip this section.
4. At the **IP? 111111111111n** prompt, enter the IP address of the other terminal(s) assigned to this console.

6. PC Data Access

This sub-block is used to configure up to two PCs to directly read (always) or write (depending on the field protection and position of the Setup switch) Shared Data fields. This access is not required to use the JAGXTREME embedded FTP Server or Web Server, but is required for OPC Server access.

1. At the **Host Node? Y** prompt, select **Y(es)** to enable host PC #1 direct Shared Data access. Select **N(o)** to disable host PC #1 and skip this section.
2. The display reads **IP? 000000000000** This is the Host PC #1 IP address. Press ENTER. Enter a specific IP address if you want.
3. Otherwise, to limit access to a specific host, enter O to allow access by any host.

7. Email

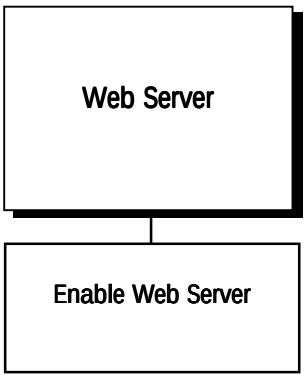


1. At the **Enable Email? Y** prompt, select **Y(es)** to enable Email Alerter, a send-only Email client. Select **N(o)** to disable and skip this section.
2. If you selected **Y(es),** press ENTER. The display will read **IP? 000000000000.** This is the IP address for the SMTP server that will forward the Email. Press ENTER.
3. The display will now read **Name?** prompt. Use the numeric keys to enter the name that will be used in the Email message “Sender” field. Press ENTER.
4. At the **Addr?** prompt, enter the Email address to use in the Email “Sender’s Email Address” field. The JAGXTREME terminal cannot accept return Email. However, entering this address is useful for identifying the sending machine. Press ENTER.
5. At the **Subj? Automated** prompt, enter the string to use in the Email message “Subject” field. Press ENTER.
6. At the **IO Port?** prompt, press ENTER to send out Email via Ethernet. Or, press SELECT then ENTER to send Email via a dial up (PPP) serial port connection.
7. If you selected **PPP**, the display will read **TCP Port?** Choose the TCP port number for sending the Email. Press ENTER. The display will read **Email Recip? 1.** Up to

six (6) recipients can be specified for the Email message. Each recipient has a separate configuration for Email generated from this JAGXTREME terminal. Select a recipient number (1-6) here.

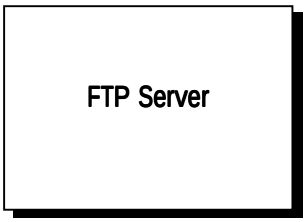
8. The display will read **Addr?.** Enter the Email address for the recipient number selected in the previous step. Press ENTER.
9. The display will read **Calib Check?** Press ENTER to select **N(o)** and disable Email transmission for all calibration check failures for this recipient. Press SELECT followed by ENTER to select **Y(es)** and send Email for all configured alerts to this recipient.
10. The display reads **Predict Fail?** Press ENTER to select **N(o)** and disable Email transmission for all predictive failure conditions for this recipient. Press SELECT then ENTER to choose **Y(es)** and send an Email for all predictive failure conditions for this recipient.
11. The display no reads **Done? N** Press ENTER to select **N(o)** and loop back to ask for another recipient. Press SELECT then ENTER to choose **Y(es)** and exit this section.

8. Web Server



1. At the **Web Server** display, press ENTER.
2. The display will read **Enable Web Ser? Y** Press ENTER to select **Y(es)** and enable remote access via the embedded web server. Or, press SELECT then ENTER to choose **N(o)** and disable the web server. Press ENTER to move to the next sub-block.

9. FTP Server



At the **Enable FTP Ser?** prompt, select **Y(es)** to enable remote file transfer access via the embedded FTP Server. Select **N(o)** to disable the FTP server.

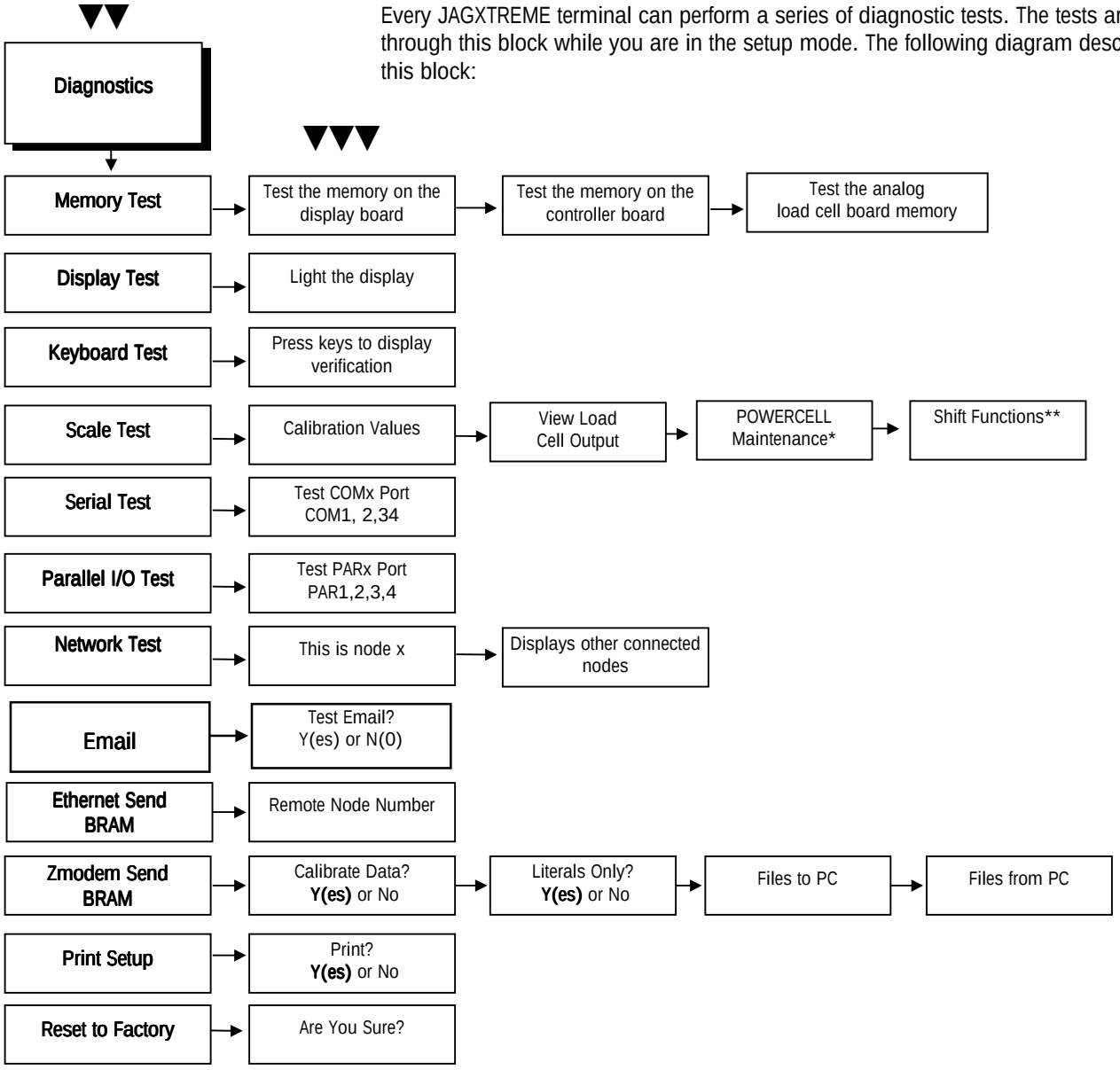
10. PLC SP Control Sub-block

The PLC SP Control sub-block is used to let the PLC control setpoints. To configure the sub-block:

1. Press ENTER at the **PLC SP Control** prompt.
2. Select **Y(es)** to control setpoints through the PLC option (in either a local or remote terminal). Select **N(o)** if no control.
3. Press ENTER to continue to the next sub-block or ESCAPE to exit the setup mode.

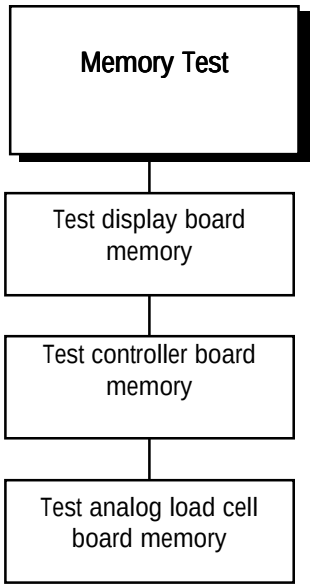
Diagnostics Program Block

Every JAGXTREME terminal can perform a series of diagnostic tests. The tests are done through this block while you are in the setup mode. The following diagram describes this block:



*If scale type POWERCELL is selected. **If scale type POWERCELL or DigiTOL J-Box is selected.

1. Memory Test Sub-block

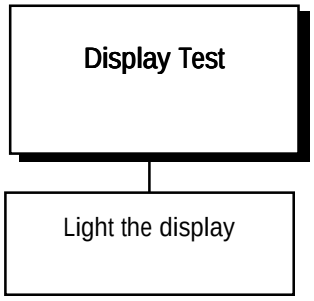


The Memory Test sub-block tests the terminal's internal memory. These diagnostics test the Flash memory, RAM, and EEPROM on the Controller board and any optional boards that are installed. The results of the memory tests are displayed on the terminal.

To execute the memory tests:

1. Press ENTER at the **Memory Test** prompt. The JAGXTREME terminal automatically tests the Controller board, and proceeds to any optional boards that are installed. The terminal flashes the software revision and part number of the component currently being tested and its status.
2. As the tests are complete, the terminal flashes the results on the lower display.
3. Continue to the next sub-block or exit the setup mode.

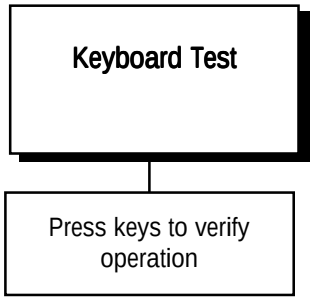
2. Display Test Sub-block



This sub-block tests the upper and lower display areas of the terminal and tests display ROM and RAM.

1. Press ENTER at the **Display Test** prompt to initiate the display test. The terminal automatically tests the display by lighting each segment. The terminal then displays the software revision and part number, tests display ROM and RAM, and flashes the results on the lower display.
2. When the test is finished, continue to the next sub-block or exit setup.

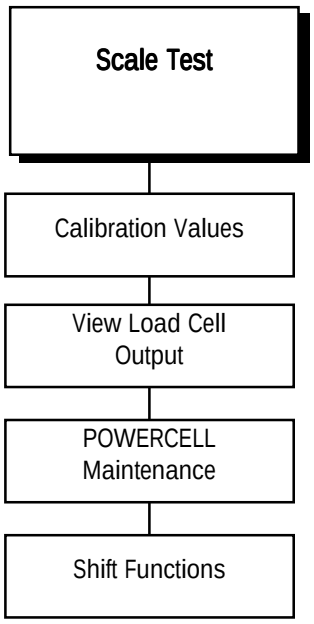
3. Keyboard Test Sub-block



The keyboard test verifies the operation of each key on the JAGXTREME terminal keypad or an externally connected PC-AT keyboard.

1. Press ENTER at the **Keyboard Test** prompt to initiate the test. You can press ESCAPE to exit the keyboard test.
2. Press each key on the JAGXTREME terminal keyboard or PC keyboard if attached. If the depressed key works, the key name is displayed. If the depressed key does not work, the terminal does not respond.
3. For example, to test the MEMORY key, press MEMORY on the keypad. If it works properly, the display reads **Memory**. If it is inoperative, the display remains blank.
4. Repeat step 2 to test as many keys as you like.
5. When finished, exit the keyboard test by pressing ESCAPE.

4. Scale Test Sub-block



This sub-block holds several scale operation and calibration parameters that were used when you calibrated the scale through the Scale Interface program block. You can use this sub-block to:

- View and record calibration values.
- Reenter the values quickly when you replace the load cell, or if the load cell fails.
- Verify the IDENTCODE value and software version of a connected IDNET base.

If you need to re-enter calibration values due to a failure, this program block lets you get the scale back into operation. You may experience error in linearity or zero reference up to 2% until the scale is recalibrated.

If the scale type is POWERCELL, the scale test sub-block lets you address each individual POWERCELL at the time of installation and configuration, or you can re-address POWERCELLs if necessary.

MMR (IDNET) Scale Bases

If the terminal is connected to an IDNET base, you may confirm the IDENTICODE number and software version number:

- **IDENTCODE** - indicates the number of times the scale has been calibrated.
- **S/W** - indicates the software version currently installed in the base.

Use the SELECT key to alternate between the above two choices. Press ESC to exit.

DigiTOL J-Box or POWERCELL Bases

If the scale type is DigiTOL J-Box or POWERCELL, the scale test sub-block lets you reset the shift value.

1. Press ENTER at the **Scale Test** prompt.
2. Press ENTER at the **Cal Values** prompt, then view or enter new calibration values for the following:
   - **ZeroCnts**—View/enter the zero reference number at gross zero.

   If linearity correction is disabled:
   - **HighWt**—is the test weight used for calibration
   - **HighCnts**—is the analog count at the high weight

   If linearity correction is enabled:
   - **MidWt—**is the test weight used for mid weight during calibration
   - **MidCnts—**is the analog count at mid weight
   - **HighWt—**is the test weight used for calibration
   - **HighCnts—**is the analog count at the high weight
   - **Cell 01-4—**View/enter a shift constant for load cells 1 through 4 for DigiTOL J-Box applications. For CMOS POWERCELL applications, the prompt may read Cells 1-24 or 31-3,5 depending on the number of scales and the number of cells in each scale.

   3. Press ENTER at the **View LC Output** prompt to view the output count of the Analog PCB. For DigiTOL load cells connected to COM2 or COM4, the load cell output is the raw count from the load cell. For DigiTOL J-box or POWERCELL scales, you can view each load cell individually.

The **PwrCell Maint.** prompt appears only if POWERCELL is selected as the scale type.

The re-address feature lets you address CMOS POWERCELLs when you install a new scale.

4. Press ENTER at the **Cell Counts** prompt to view the raw count data. The Cell Counts feature is useful for observing scale output for slow drift, shift adjustment, or for locating an unstable load cell.
5. Press ENTER at the **PwrCell Maint.** prompt, then select the maintenance procedure to perform. POWERCELL maintenance options include Re-Address Cell, Diagnose Cell, AutoAddress Cell, and Address All 240.

If Re-Address Cell is Selected

1. Press ENTER at the **Re-Address Cell** prompt. The terminal disconnects power to the POWERCELL and displays **Power Now Off.**
2. With the power disconnected to the POWERCELL, connect the first cell to be addressed (cell 1 for a single scale configuration or cell 31 for a second scale). NOTE: N(o) cells other than the POWERCELL to be addressed should be connected at this time.
3. Press ENTER at the **Power Now Off** prompt when the cell is connected.
4. At the **What Addrs? 0** prompt, use the numeric keys to enter the first cell's address. Enter 1 for a single scale configuration or 31 for the first cell in a second scale. While the cell address is being changed, the display will show **Addressing X**, where X is the cell address which has been entered. When the JAGXTREME terminal has re-addressed the POWERCELL, it displays the message "Addressed OK." When you press ENTER, the JAGXTREME terminal re-displays the message **Power Now Off**.
5. At the **Power Now Off** prompt, disconnect the first cell, then connect the second cell to be addressed.
6. Repeat this procedure to address or re-address each POWERCELL. When all cells have been addressed and with the **Power Now Off** message displayed, reconnect all cells.

If Diagnose Cell is Selected

1. Press ENTER at the **Diagnose Cell** prompt. The JAGXTREME terminal disconnects power to the POWERCELL and displays the message **Power Now Off.**
2. With the power disconnected to the POWERCELL, connect the first cell to be diagnosed (cell 1 for a single scale configuration or cell 31 for a second scale). No cells other than the POWERCELL to be diagnosed should be connected at this time.
3. Press ENTER at the **Power Now Off** prompt when the cell is connected. The terminal will search for the cell and confirm its correct address with the message **Address=address found**. An error message appears if the cell address is not correct. The terminal displays cell counts on the upper display. When the cell is diagnosed, the terminal re-displays the message **Power Now Off**.
4. At the **Power Now Off** prompt, disconnect the first cell then connect the second cell to be diagnosed.
5. Repeat for each POWERCELL to be diagnosed. When all cells have been diagnosed and with the **Power Now Off** message displayed, reconnect all cells.

If AutoAddressing POWERCELLs is Selected

The AutoAddressing Menu Selection helps you to address POWERCELLs in a new POWERCELL Scale or to replace a single POWERCELL in an existing POWERCELL scale. AutoAddressing searches POWERCELLs addresses in the network, finds the first missing address in the addressing sequence, and readdresses a POWERCELL with address #240 to the missing address. You can have only one POWERCELL with address #240 on-line at a time. New POWERCELLs have address #240.

The beginning of the searching sequence for a POWERCELL scale is address #1 or #31, whichever is the starting address of the for POWERCELLs in the scale.You select the starting address for the scale in the **Scale Interface, Scale Type, Loc?** menu selection.

Use the following procedure to address the POWERCELLs in a new POWERCELL scale:

1. Press ENTER at the **AutoAddress** prompt. The terminal turns off the electrical power to the POWERCELL network and displays the message "**Power Now Off**."
2. Connect POWERCELL #1 to the network. It must have default address #240.
3. Press ENTER. The terminal displays the message "**Searching...**" while it is searching for the first missing cell. Once it finds #1 is the missing cell, the terminal displays "**Addressing 1**." When it completes addressing the cell, the terminal displays "**Addressed OK**."
4. Press ENTER. The terminal turns off the network and displays "**Power Now Off**."
5. Connect the next POWERCELL, #N, to the network. #N represents the sequence of cell addresses #2, #3, #4 .... up to all cells in the scale. #N must have default address #240.

Do not disconnect POWERCELLs that you have already addressed.

6. Press ENTER. The JAGXTREME terminal displays the message **"Searching..."** while it is searching for the first missing cell. Once it finds that #N is the missing cell, the JAGXTREME terminal displays "**Addressing N**." When it completes addressing the cell, the JAGXTREME terminal displays "**Addressed OK**."
7. Repeat steps 5-7 until you have addressed all the POWERCELLs. If the terminal does not find any missing cells when it is doing the search in Step 7, the terminal displays "**N(o) Missing Cell!**"
8. Use the following procedure to replace a POWERCELL in a POWERCELL scale:
   - Go to **Diagnostics, Scale Test, PwrCell Maint, AutoAddress** in the terminal setup menus.
   - Press ENTER. The JAGXTREME terminal turns off the electrical power to the POWERCELL network and displays the message "**Power Now Off**".
   - Replace the POWERCELL, #N, in the network. #N represents the cell to be replaced. It must have default address #240. Do not disconnect the other POWERCELLs.
   - Press ENTER. The JAGXTREME terminal displays the message "**Searching...**" while it is searching for the first missing cell. Once it finds that #N is the missing cell, the terminal displays "**Addressing N**." When it completes addressing the cell, the terminal displays "**Addressed OK**."

If Address All 240 is Selected

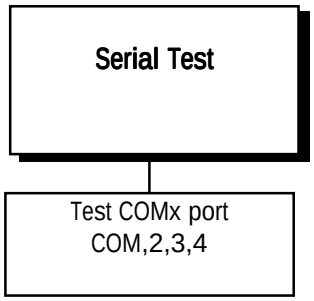
1. When you press ENTER, the terminal displays "**Power Now Off**."
2. Connect all POWERCELLs to the network that you want to re-address to 240.
3. When you press ENTER, the terminal displays the message "**Addressing 240**." It can take a few minutes to re-address all cells depending on the number of cells and their old addresses.
4. When addressing is complete, the JAGXTREME terminal displays "**Addressed OK**."
5. Press ENTER at the **Shift Functions** prompt to access the shift functions.
6. At the **Reset Shift** prompt, press ENTER to reset the shift adjustment factors for a DigiTOL J-Box 1.0 or POWERCELL. This resets all Shift Adjust Factors to 1.0.
7. At the **Are You Sure?** prompt, select **Y(es)** or **N(o)** to confirm or abort the reset operation.

Note: These shift adjust functions allow you quickly reset all the shift adjust parameters or to do a quick shift adjust approximation when a single bad cell is replaced. We recommend that you go through the full shift adjust procedure in the Scale Interface Setup section.

8. Press ENTER at the **Adjust Cell/Pair** prompt to begin the DigiTOL J-Box/POWERCELL adjustment procedure.
9. At the **What Cell?** prompt, enter the number of the cell or pair of cells to be adjusted.
10. At the **Empty the Scale** prompt, remove any weight on the platform, then press ENTER. The display reads **Capturing Zero** as the terminal captures zero.
11. At the **Load On Cell N** or **Load On Pair N** prompt, place on the platform a test weight equaling approximately 50% of the scale's capacity.

    The JAGXTREME terminal automatically shift adjusts the scale for the current load cell as the display reads **Capturing Cell N** or **Capturing Pair N**. The single-cell shift adjust procedure described here allows you to perform a quick approximation of the shift adjust value when a single, bad cell is being replaced on the scale. Refer to Chapter 3 if you want to do a complete shift adjust of D-J Box or POWERCELL Scale. This complete shift adjust is more accurate and should be used if more than one POWERCELL is being replaced on the scale.
12. Continue to the next sub-block or exit the setup mode.

5. Serial Test Sub-block



After testing, remember to change the scale type back to DigiTOL and verify that calibration is correct by applying weight to the scale.

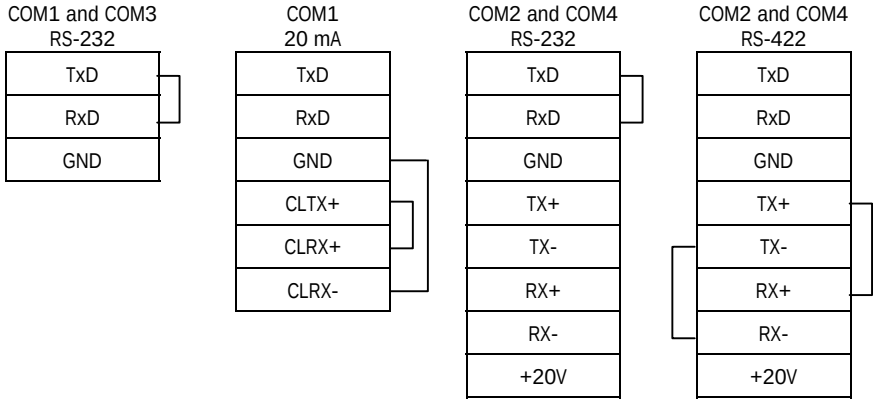
The Serial Test sub-block tests the serial I/O ports. You can transmit a test string of data to a designated port, or receive a string of input data. The input data scrolls across the lower display as received. You may see special characters representing control characters in the test string.

1. Press ENTER at the **Serial Test** prompt to test serial ports.
2. At the **Test COM Port?** prompt, press SELECT to choose the serial port you wish to test (COM1 or COM2).
3. You can test only COM ports that are physically available on your JAGXTREME terminal. You cannot test remotely located ports.
4. The lower display reads **Testing COMx:** until a serial input is received. When input is received, the characters are displayed in the lower display. The terminal is constantly outputting the string **Testing COMx: NN** where x is the COM port number and NN is a transmission number beginning at 00 and counting through 99.

The serial test cannot test COM2 if it is associated with a DigiTOL scale. Change the DigiTOL scale type to **Analog** or **None** through the Scale Interface program block before performing a serial test.

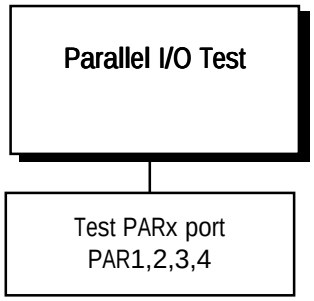
If a jumper wire is placed between the transmit and receive terminals on the serial port being tested, you can test both the input and output of a port and view the string of data being transmitted on the lower display.

The following diagram shows how to connect the output to the input for both serial ports and all types of communication.



1. Press ESCAPE to exit the serial test when you are finished.
2. Repeat steps 2 and 3 to test additional COM ports.
3. Continue to the next sub-block or exit the setup mode.

6. Parallel I/O Test Sub-block



PN 082523020 LED/SWITCH simulator is available for testing PAR 1/PAR 2 from Aftermarket.

The Parallel I/O Test sub-block tests the discrete I/O ports. The test can “turn on” each output and monitors inputs. See Appendix 2 for more information.

1. When you enter the Parallel I/O test, the **!WARNING!** message is flashed on the display four times. The prompt **"Are You Sure?"** is displayed. Select **Y(es)** to continue or **N(o)** to exit the test.
2. At the **Test Par Port** prompt, select the desired port to test. The terminal only offers parallel ports that are physically available on your JAGXTREME terminal.

⚠ WARNING!

THIS TEST ALLOWS YOU TO TURN THE OUTPUTS ON AND OFF FROM THE TERMINAL KEYBOARD. IT IS UNRELATED TO THE WEIGHT. IF ELECTRICAL EQUIPMENT IS CONNECTED TO THE OUTPUT OF THE JAGXTREME TERMINAL DURING THIS TEST, IT MAY START AUTOMATICALLY. TAKE ALL APPROPRIATE PRECAUTIONS TO PREVENT PERSONAL INJURY DURING THIS TEST. METTLER TOLEDO SUGGESTS UNPLUGGING THE DISCRETE I/O CONNECTOR FROM THE TERMINAL AND USING LEDS OR A VOLT METER TO VERIFY CORRECT OPERATION OF THESE OUTPUTS.

PAR 1 or PAR 3 (Discrete Input)

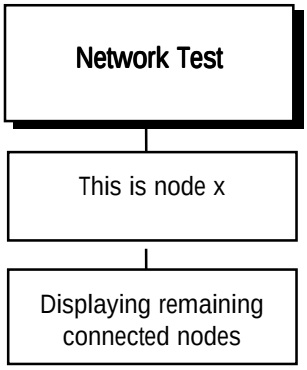
The display will read **PAR 1 = FFFF** or **PAR 3 = FFFFFFFF** indicating that the four or eight discrete inputs are all false or “OFF”. When one of the inputs is held to logic ground for 100 ms or longer, the **F** will change to a **T** to indicate a true or “ON” condition. When done, press ESCAPE to exit the test routine for the discrete inputs.

PAR 2 or PAR 4 (Discrete Output)

The display will read **PAR 2 = 0000** or **PAR 4 = 00000000** indicating that the 4 or 8 setpoint outputs are all logic 0 or "OFF". The first digit will blink, indicating that output 1 is the active output to be changed for test.

1. To turn this output on, press the "1" key. Pressing "0" returns the output to the "OFF" condition. To move to the next output (output 2), press SELECT. The second digit now blinks. Each setpoint output can be turned "ON" or "OFF".
2. Press ESCAPE to exit the test routine for the discrete outputs.
3. Press ESCAPE to exit the parallel I/O test and continue to the next sub-block, or exit the setup mode.

7. Network Test Sub-block

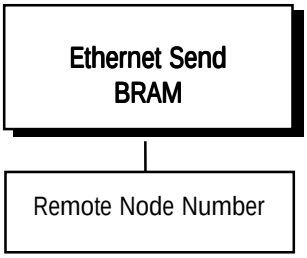


This sub-block tests the network connections. The test is done by first displaying the number of the local terminal, then requesting and receiving the node number and type of all other active nodes on the network.

1. Press ENTER at the **Network Test** prompt. The terminal automatically acquires the local network connection information. Connection information is displayed in the lower display area.

   This is node x refers to the local terminal being tested.
2. **Node x Connected** where "x" is the address of the next terminal in the network. This process continues until all active nodes in the cluster have been identified, then the display sequence starts over again.
3. To end the test, press ESCAPE.
4. Continue to the next sub-block or exit the setup mode.

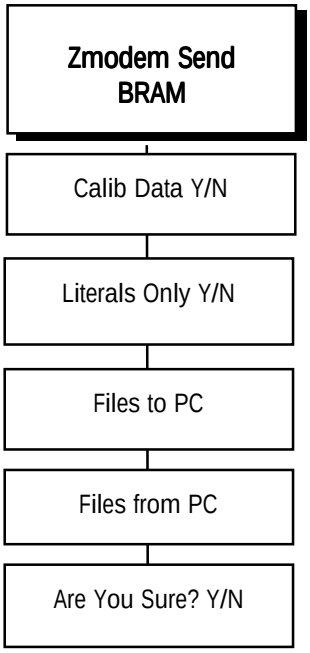
8. Ethernet Send BRAM Sub-block



This sub-block allows you to send the Shared Data BRAM parameters from one JAGXTREME terminal to another over the Ethernet LAN. You can setup the BRAM parameters on one terminal and duplicate them on another. Scale calibration parameters are NOT sent.

1. Press ENTER at the **Ethernet Send BRAM** prompt.
2. Select the appropriate node and press ENTER.

9. Zmodem Send BRAM Sub-block



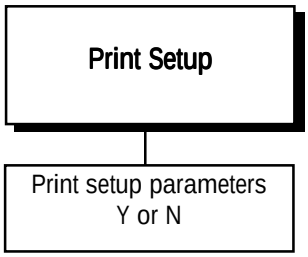
This sub-block allows you to upload or download the Shared Data BRAM parameters from one terminal to a PC via Zmodem communications from COM1. The data transferred can include or exclude calibration data. Literals only can be selected to have prompt loop, user variable, literal, and template data transferred only.

1. Press ENTER at the **Zmodem Send BRAM** prompt.
2. Select **Y(es)** at the **Calib Data Y/N** prompt to transfer scale calibration data.
3. Select **Y(es)** at the **Literals Only Y/N** prompt if you wish to transfer only the prompt loop, user variable, literal, and template data.
4. At the **Files to PC?** prompt, select **Y(es)** if you want to enable the transfer from the terminal to your PC, or select **N(o)** if you do not want the transfer in this direction.

   If **Y(es)** is selected, at the **Are You Sure?** prompt, select **Y(es)** to enable the JAGXTREME terminal to transfer the selected data. If you select **N(o)**, the transfer will not occur and the **Files from PC?** prompt is displayed.
5. At the **Files from PC?** prompt, select **Y(es)** to enable the transfer from your PC to the terminal, or **N(o)** if you do not want the transfer in this direction. If **Y(es)** is selected, at the **Are You Sure?** prompt, select **Y(es)** to enable the transfer from your PC to the JAGXTREME terminal. If **N(o)** is selected, the transfer will not occur.

NOTE: Zmodem of BRAM data requires a huge portion of available heap space. If there is not enough space to complete the transfer, an "**Out Of Memory**" message will be displayed. The terminal will go through a power reset operation. Once the power reset is complete, the Zmodem transfer will occur. If JAGBRAM.DAT file already exists, the transfer will abort with no error.

10. Print Setup Sub-block



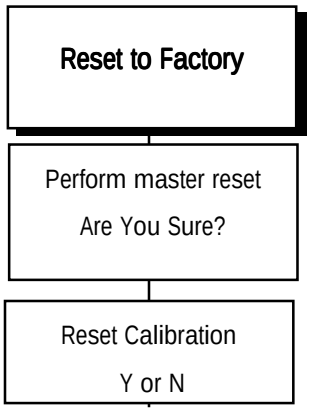
If METTLER TOLEDO model 8856 is used at 9600 baud, connect both TXD and RXD lines. Configure the port for XON/XOFF operation.

The Print Setup sub-block prints the terminal setup information as it is defined in the program blocks. It may be useful to have a hard copy of each terminal's setup parameters as back-up. Print setup data will be sent out the port that has been selected for demand output. If a network port has been selected, the data is sent through it.

1. Press ENTER at the **Print Setup** prompt. Press ENTER again at the **Print?** prompt if you wish to print the setup parameters as defined in the program blocks for this terminal. If you do not want to print the setup, press ESCAPE.

   Setup data is printed in a 40-column format that is compatible with the METTLER TOLEDO 8856 Strip Printer. A standard 80-column printer will also work. Label printers are not acceptable devices for printing this information since there are many lines of data.
2. Press ENTER at the **Reset to Factory** prompt to continue or exit setup.

11. Reset to Factory Sub-block



Note: Reset to Factory clears the RAM Disk! YOU WILL LOSE ALL JAGBASIC PROGRAMS AND DATA FILES.

The Reset to Factory sub-block in this program block differs from other blocks. Because this program block has no unique parameters to set, Reset to Factory performs a master reset which returns all of the parameters for all blocks to their original settings.

To perform a master reset:

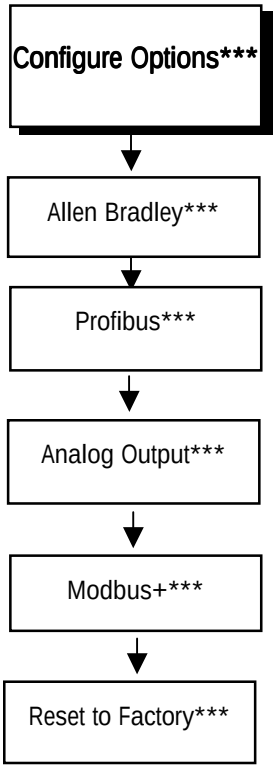
1. Press ENTER at the **Reset to Factory** prompt.
2. Select **Y(es)** at the **Are You Sure?** prompt to confirm your intention to reset. Or, select **N(o)** to exit without resetting all parameters.

   If **Y(es),** at the **Reset Calib?** prompt select **N(o)** to reset all parameters except calibration or **Y(es)** to reset all parameters including the scale calibration parameters.

   If you choose to reset the calibration values, the current scale capacity, increment size, and span and zero values will all be lost and scale recalibration will be required. The terminal displays **Performing Reset** and all parameters are returned to factory settings.
3. After resetting, the JAGXTREME terminal will perform its normal power-up sequence.

Options Program Block

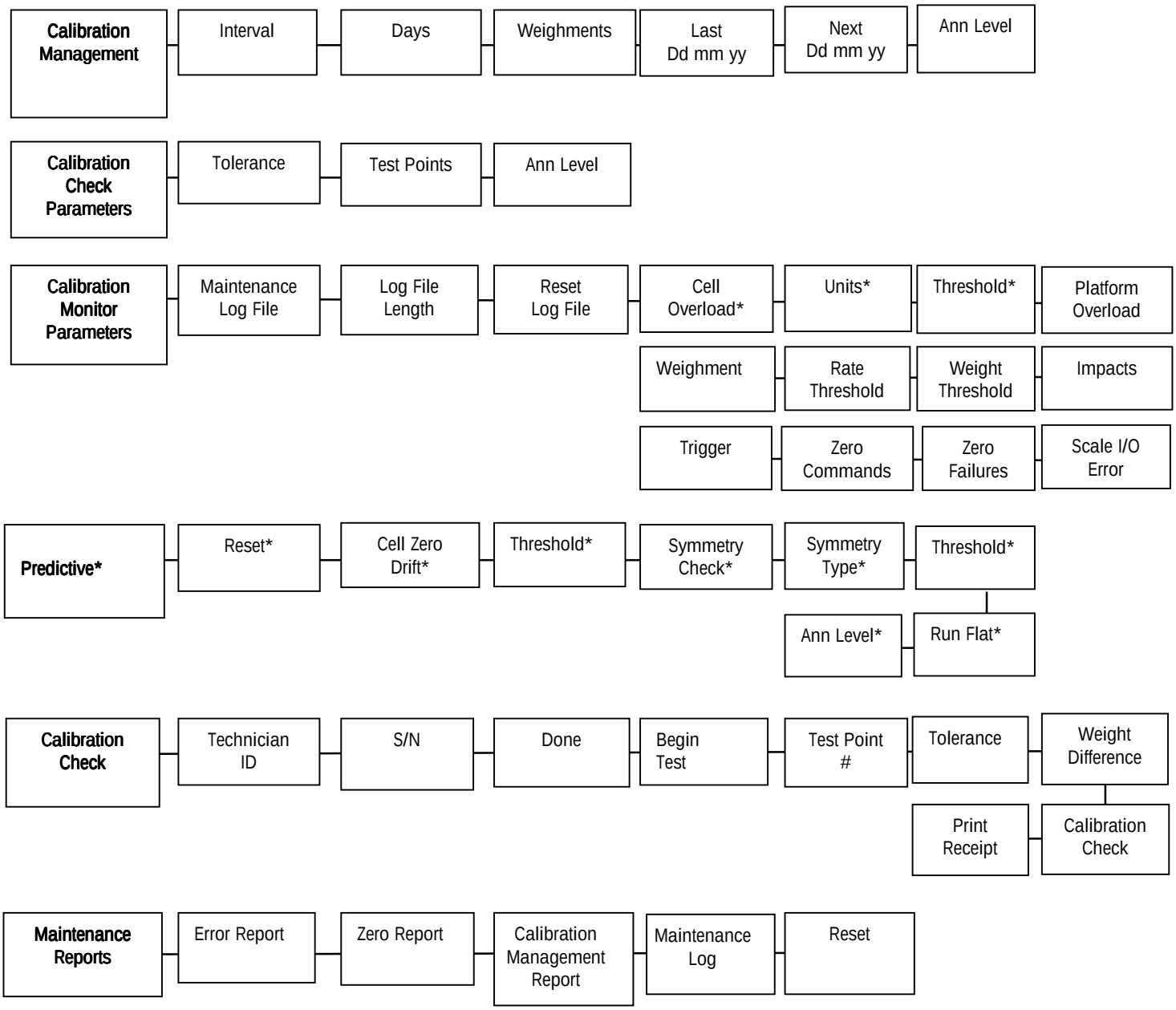
JAGXTREME terminals with a PLC Interface Module installed have an additional program block for configuration. The terminal is available with an Allen-Bradley RIO PROFIBUS, or Dual Analog Output Module. The program block will not appear if one of these options is not installed. The following diagram describes this program block:



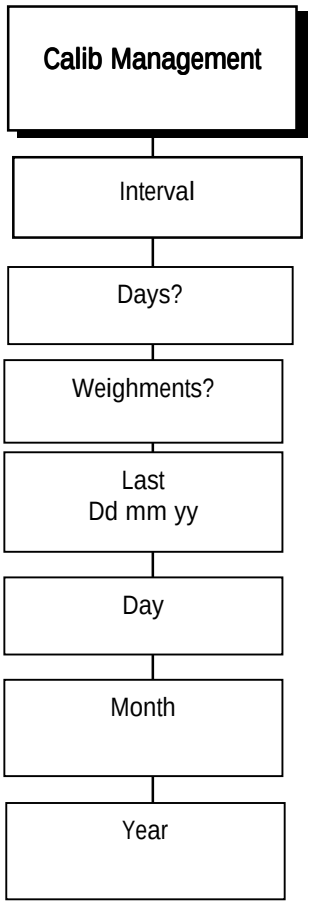
For specific details on these interfaces and how they may be configured, refer to the JAGUAR/JAGXTREME Terminal PLC and Analog Output Interface Technical Manual, available from METTLER TOLEDO.

*** These selections available with options installed.

Maintenance



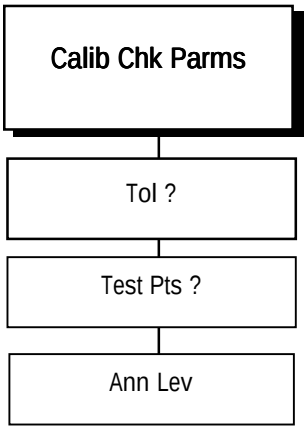
1. Calibration Management



The Calibration Management sub-block section enables users to specify the calibration checking interval (by time or use) that the JAGXTREME terminal will use to notify the user that the scale needs to be checked and verified with test weights. (A calibration test weight check is manually performed on the complete weighing system to determine the system accuracy). The JAGXTREME terminal has incorporated the calibration test weight check into its operating system under the "Calibration Check" program sub-block to assist the user through the calibration test. The parameters below specify the interval or when the test is to be performed.

14. Press **ENTER** at the **Interval** prompt to specify how often the scale will require calibration checking. The checking interval can be expressed in days of use, number of weighments, or both.
15. At the **Days?** prompt ,enter the number of days allowed between calibration checks (0-999).
16. At the **Weighments?** prompt, enter the number of weighments between calibration checks (0-99999).
17. The **Last dd mm yyyy** prompt shows the last date of the last calibration check. If the date comes up as dashes, then the next series of prompts will ask the user to enter the date of the last calibration check. (Day, Month, Year)
18. The **Next dd mm yyyy** prompt shows the date of the next calibration check (based on date of last calibration and number of days allowed between calibration).
19. At the **Ann Lev?** prompt, use the **SELECT** key to choose the action to be performed when the calibration interval has expired.
    - **Alarm** (alarm displayed on lower display)
    - **Log** (alarm displayed on lower display and recorded in log file)
    - **Email** (alarm displayed on lower display and Email sent)
    - **Disable Sale** (alarm displayed on lower display and scale disabled)
20. Press **ENTER** to continue to the next sub-block or **ESCAPE** to exit setup.

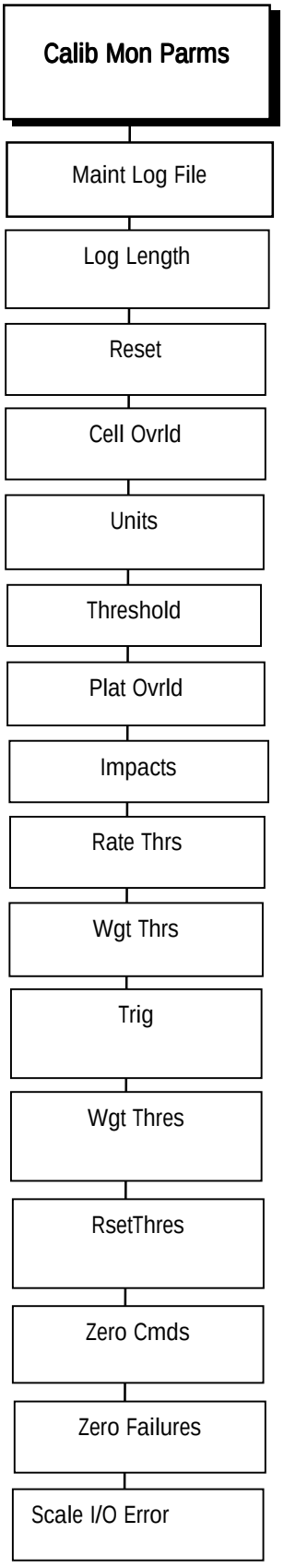
2. Calib Chk Parms



The Calibration Check Parameters sub-block section enables you to specify the test parameters (default tolerance, number of test weight checks and alarm level) used in the JAGXTREME calibration test weight check procedure. The user will enter the number of test points and the starting value of the tolerance permitted between the test weight and the weight displayed on the scale.

1. Press ENTER at the **Calib Chk Parms** prompt to configure this sub-block.
2. At the **Tol ?** prompt, enter the calibration check tolerance in weighing units.
3. At the **Test Pts ?** prompt, enter the number of test points to be used for the calibration check (0-99).
4. At the **Ann Lev?** prompt use the SELECT keys to choose the announcement level action to be performed when the calibration interval has expired.
   - Alarm (alarm displayed on lower display)
   - Log (alarm displayed on lower display and recorded in log file)
   - Email (alarm displayed on lower display and Email sent)
   - Disable Sale (alarm displayed on lower display and scale disabled)
5. Press ENTER to continue to the next sub-block or ESCAPE to exit setup.

3. Calib Mon Parms



This sub-block enables the user to specify equipment condition monitoring activities (cell overload, weighing platform overload, weighing platform impacts, zero drift). To ensure maximum uptime, the terminal performs equipment condition monitoring during its normal operation based on comparisons made against installer-selected thresholds configured in this sub-block. If the terminal determines that the equipment is operating outside the selected thresholds, a record will be added to the maintenance log file

1. At the **Calib Mon Parms** prompt, press ENTER to set up the calibration monitoring parameters
2. At the **Maint Log File**? prompt, select **Y(es)** to enable Maintenance Log file usage or **N(o)** to disable logging and go to the Calibrate Check sub-block.
3. At the **Log Length?** prompt, enter the number of log files record to maintain. The file is a circular buffer. When the file is full, the oldest record will be written over by the next log entry. The file can be 1-9999 records in length.
4. At the **Reset?** prompt, select **Y(es)** to reset the log file and erase any old data. You will be asked to confirm your choice with an **Are You Sure?** prompt, or select **N(o)** to not reset the log file and continue.

   Note: If a POWERCELL interface option is not installed, skip to the **Plat Ovrld** prompt.
5. At the **Cell Ovrld?** prompt, select **N(o)** to disable individual POWERCELL load cell overload monitoring and move to **Plat Ovrld?** (step 3.8). Or select:
   - **Cnt** to count individual cell overloads.
   - **Log** to log the file for each occurrence.
6. Units? prompt, enter how you want the load cell counts expressed. Choose:
   - load cell Counts weighing units
   - load cell Primary weighing units.
7. At the **Threshold?** prompt, enter the value of the threshold using the units selected in step 6. (0-999999)

15. At the **Plat Ovrld?** prompt, you can select:

    Cnt to count scale platform overload conditions.

    Log to count and log the file for each overload
16. At the **Impacts?** prompt, you can select:

    N(o) to disable impact load monitoring and move to step 12.

    Cnt to count impact loads.

    Log to log and count impact loads.
17. At the **WgtThres? Xxxx** prompt, enter the threshold weight in primary weight units.(0-999999)
18. At the **RateThrs**? **Xxxx** prompt by entering a rate of change threshold value in primary weight units/second.(0-999999)
19. At the **Weighment** prompt, select:

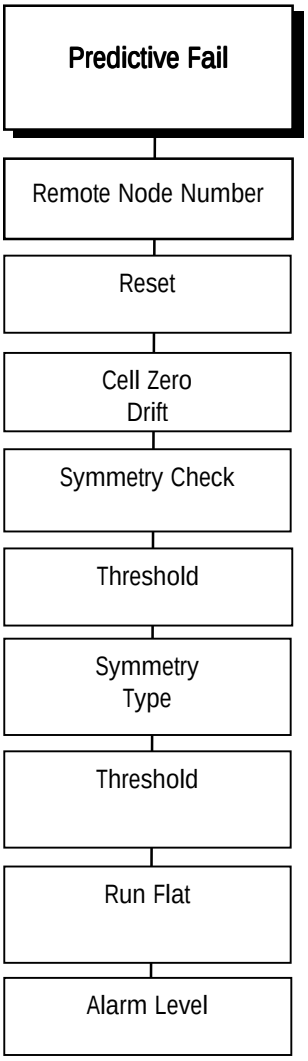
    N(o) to disable weighment monitoring and move to step 3.16

    Cnt to count weighments.

    Log to log and count weighments.
13. Press **ENTER**.

14. At **Trig?** prompt, you can choose:
    - **Print Cmd** to trigger the completion of a weighment when ever a PRINT is initiated
    - **UpScl WtG** to trigger the completion of a weighment when ever the gross scale weight goes above threshold
    - **UpScl WtN** to trigger the completion of a weighment when ever the net scale weight goes above threshold
    - **DwnScl WtG** to trigger the completion of a weighment when ever the gross scale goes above a threshold and below a reset threshold
    - **DwnScl WtN** to trigger the completion of a weighment when ever the net scale weight scale goes above a threshold and below a reset threshold
15. At the **Wgt Thres? X.xxx** prompt, enter the threshold weight that must be exceeded to set the trigger point defined in step 13
16. At the **Rset Thres? X.xxx** prompt, enter the threshold weight the scale must return to set the trigger point defined in step 13
17. At the **Zero Cmds?** prompt, you can select:
    - **Cnt** to count scale zero commands.
    - **Log** to log and count scale zero commands.
18. At the **Zero Fail?** prompt, you can choose:
    - **Cnt** to count scale zero command failures.
    - **Log** to log and count scale zero command failures.
19. At the **Scl I/O Err?** prompt, you can choose:
    - **Cnt** to count Scale I/O errors.
    - **Log** to count and log Scale I/O errors.

Predictive Failure (Only for RAAD Box and POWERCELL Platforms)

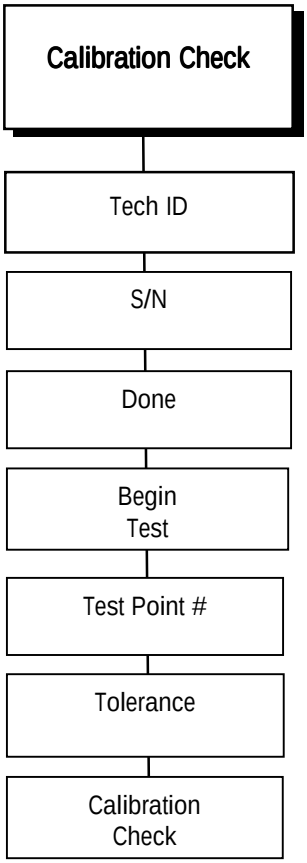


This sub-block enables the user to configure the predictive failure algorithms and "run flat" operation. This enables the terminal to monitor and predict the operating condition of each load cell in a weighing system by comparing current operating parameters against empirical data stored in the terminal at the time of calibration.

If the JAGXTREME terminal determines that a load cell is operating out of tolerance, it can invoke the "Run Flat" algorithm to compensate for it until a replacement is made. Successful operation of the run flat algorithm requires symmetry in the installation of the load cells (pair or radial arrangement). If you are unsure of your load cell arrangement, consult you METTLER TOLEDO representative. The JAGXTREME terminal will monitor the individual load cell ZERO DRIFT and SYMMETRY based on parameters set in this sub-block.

1. At the **Predictive Fail** prompt, press ENTER to setup the Predictive Failure monitoring parameters
2. At the **Reset?** prompt, press **Y(es)** if you replaced the defective load cell and want to reset the predictive failure and run flat analysis. Press **N(o)** if you do not want to reset them.
3. At the **Cell Zr Drf?** prompt, the user may select:
   - **Cnt** to count individual load cell zero drifts.
   - **Log** to log and count individual load cell zero drifts
   - **No** to ignore individual load cell zero drifts.
4. At the **Threshold** prompt, the user enters the zero drift tolerance as a percentage of load cell span.
5. At the **Symmetry Chk?** prompt, the user may select:
   - **Cnt** to count individual load cell symmetry errors.
   - **Log** to log and count individual load cell symmetry error.
   - **No** to ignore individual load cell symmetry errors
6. At the **Symmetry Typ?** prompt, the user may select:
   - **Rad** for load cells arranged in a radial symmetry.
   - **Pair** for load cells arranged as pairs.
7. At the **Threshld?** prompt, the user enters the maximum acceptable deviation tolerance, in percent, that any individual load cell can be compared to the other load cells in the system.
8. At the **Run Flat?** prompt, press **Y(es)** to enable the "Run Flat" algorithm; press **N(o)** to disable the "Run Flat" algorithm.
9. At the **Ann Lev?** prompt ,use the SELECT key to choose the announcement level action to be performed when the predictive failure system detects an error.
   - **Alarm** (alarm displayed on lower display)
   - **Log** (alarm displayed on lower display and recorded in log file)
   - **Email** (alarm displayed on lower display and Email sent)
   - **Disable Scale** (alarm displayed on lower display and scale disabled)

Calibrate Check



The Calibration Check sub-block section enables the user to perform the calibration test weight check with assistance from the JAGXTREME terminal. The terminal will instruct the user through the test based on parameters entered in the Calibration Check Parameters section.

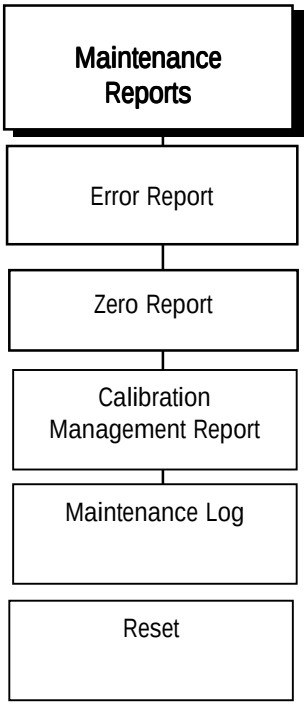
At the **Calibrate Check** prompt, you can request that the JAGXTREME terminal check the calibration of its scale(s). Doing so here will reset the calibration management interval conditions

1. At the **Tech ID?** prompt, enter the Technician ID (1-6 characters).
2. At the **S/N?** prompt, enter the serial number for a test weight to be used (1-10 characters)
3. At the **Done?** prompt, select **Y(es)** to confirm that all test weight serial numbers entered, then proceed to step 5. Or, press **N(o)** to indicate there are more test weight serial numbers to enter. Repeat step 3 until you have entered all test weight serial numbers.
4. At the **Begin Test?** prompt select **Y(es)** to start the test.
5. At the prompt **Tst Pt01? X.xxx** , enter the value of the 1st test weigh load.
6. At the prompt **Wt01 Dif Y.yyy**. The deviation between the entered weight and the scale reading is displayed and recorded

Note: These two steps are repeated until all test points are completed.

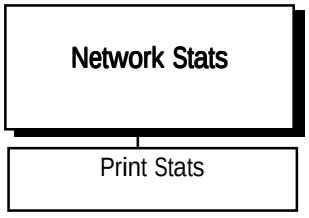
7. Upon completion, the display will show the **Calib Chk** prompt and then whether the calibration check passed or failed. Press ENTER
8. The display reads **Print Receipt?** You can select:
   - **Y(es)** to print receipt
   - **N(o)** to not print receipt

Maintenance Reports



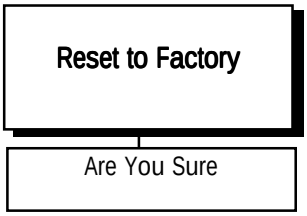
1. Press ENTER to configure this sub-block. The display reads **Error Report?** Select Y**(es)** to print the report or N**(o)** to not print it and move on to the next step.
2. The prompt reads **Zero Report?** Press **Y(es)** to print or **N(o)** to not print the calibration management report.
3. At the **Cal Mng Report?** prompt, press **Y(es)** to print or **N(o)** to not print the report.
4. At the **Maint Log?** prompt, press **Y(es)** to print or **N(o)** to not print the maintenance log report.
5. At the **Reset?** prompt, press **Y(es)** to reset the report log file and counters. You will be asked to confirm your choice at the **Are You Sure?** prompt. Press **N(o)** to not reset the report log and counters.

Network Stats



1. At the **Network Stats** prompt, press **ENTER** to configure this block.
2. At the **Print Stats?** prompt, press **Y(es)** to print the Network Statistics report or **N(o)** to not print the report. Press **ENTER**.

Reset to Factory



1. At the **Reset to Factory** prompt, select **Y(es)** to reset this block to factory default values.
2. You will be asked to confirm your choice at the **Are You Sure?** prompt. Select **N(o)** to not reset this block.

NOTES

4 Programming and Calibration Using the Web Server

System Requirements

The JAGXTREME terminal has an embedded web server, allowing you to program and calibrate a scale from anywhere within a facility – and from anywhere in the world – via the Internet. To use this feature, you must have the following:

- A connection to the JAGXTREME terminal via modem or Ethernet with the appropriate communications protocols configured. A crossover cable is required for a direct connection via Ethernet.
- Internet Explorer 4.0 or higher revision.

You may find it helpful to review the information provided in Chapter 3 of this manual to better understand the various program blocks and options for configuring the scale.

Navigation Bar Menu

When using the embedded web server, a series of web pages will guide you through the setup and calibration process. You will begin at the Home Page. All JAGXTREME web pages include a Navigation Bar at the left side of the screen.

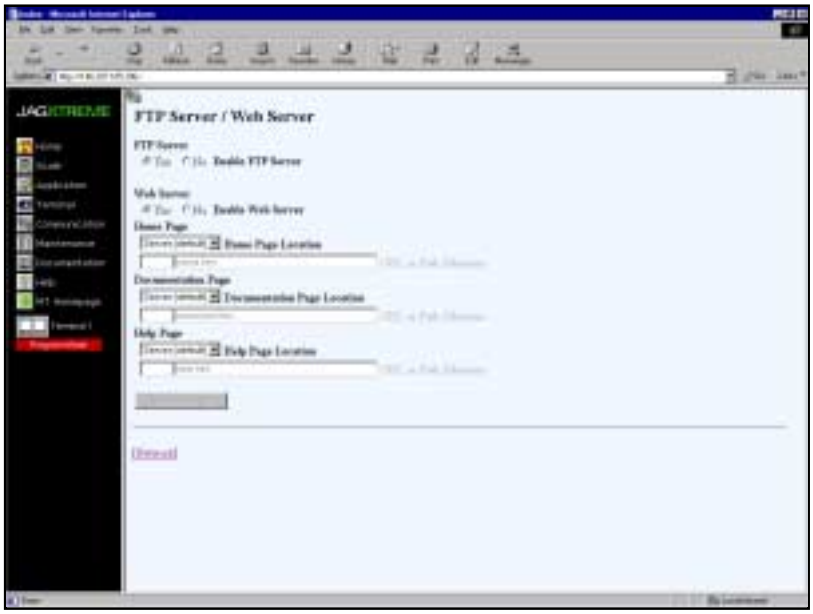
The information on the following pages describes the various icons that appear in the Navigation Bar. Clicking on these icons will you lead you to the various screens that will guide you through the setup and configuration process.

Home

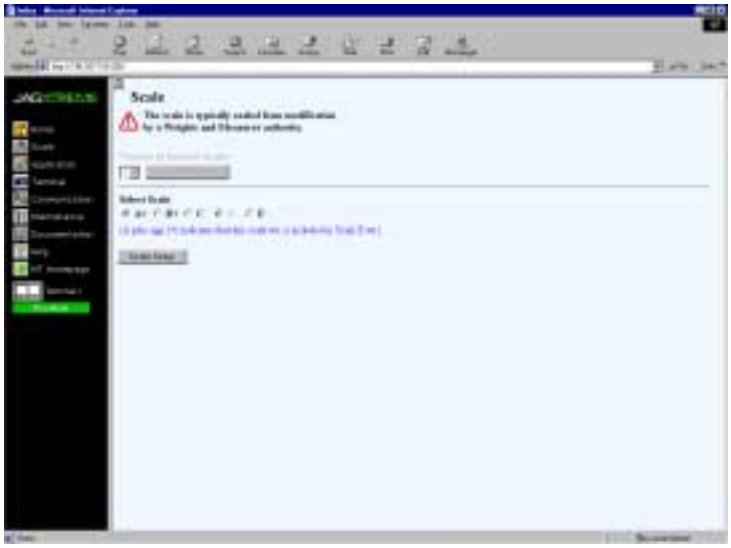
This is the default home page that is displayed when you connect to the JAGXTREME terminal via an Internet browser. Clicking on the **Home** icon in the Navigation Bar at any time will take you back to this screen. The default home page can be changed by clicking on the Custom Homepage link. (See the screen shot below.) The user has the choice of pointing to a file on the browsing PC or to a URL, which can be located anywhere on the Internet.

To change the configuration, the terminal must be in Program Mode. To change the pages, enter setup and type in the path to the file or URL. Click on **Save Changes**.

Note: Changing the home page only changes what is displayed on the right side of the screen. The Navigation Bar icons on the left side of the screen always remain constant.

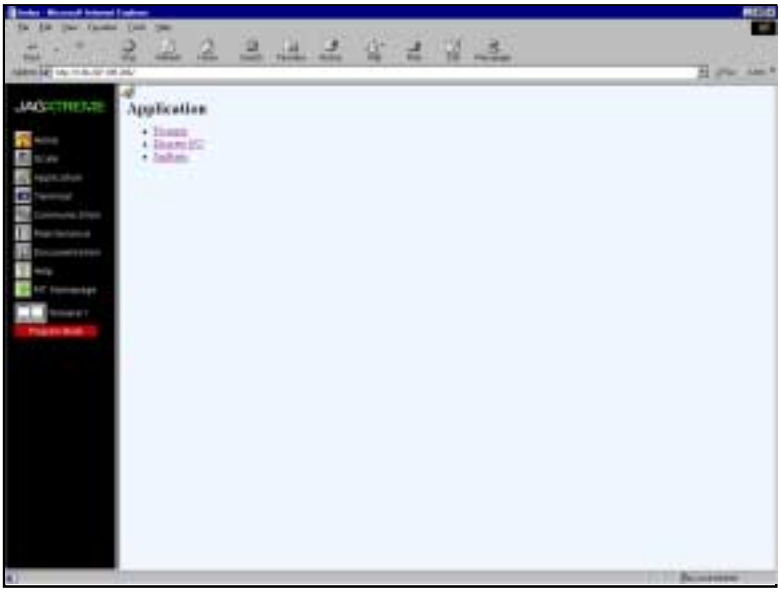


Scale



Clicking on the **Scale** icon takes you to the scale setup screen. While in Run Mode, all information is read-only. While in Program Mode, Read-Write access is allowed. This section can be changed on the fly but will reset the JAGXTREME terminal to initiate changes. Consult chapter 3 of this manual for an explanation of the menu items.

Application

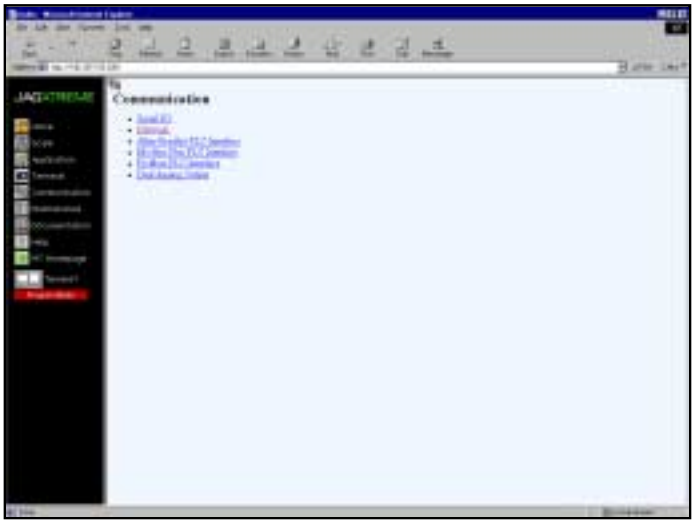


Clicking on the **Application** icon leads you to the Application screen where you will find the Prompts, Discrete I/O, and JagBASIC menus. While in Run Mode, all information is read-only. While in Program Mode, Read-Write access is allowed. Consult Chapter 3 of this manual for an explanation of the menu items.

Terminal

Clicking on the **Terminal** icon takes you to the terminal setup screen. From this page you can switch the terminal between Program Mode and Run Mode and enable/disable the keyboard. It also contains sub-menus for Terminal Environment, Date and Time, Consecutive Number, and Literals. Consult Chapter 3 of this manual for an explanation of the menu items.

Communication



Clicking on the **Communication** icon takes you to the communication setup screen. The sub-menus are:

- Serial I/O
- Network
- Allen-Bradley PLC Interface
- Modbus PLC Interface
- Profibus PLC Interface
- Dual Analog Output

Consult Chapter 3 of this manual for an explanation of the menu items.

Maintenance

Clicking on the **Maintenance** icon leads to the maintenance section, which contains four main categories:

View

- System Information
- Shared Data
- Event Log
- Terminal Setup Information

Configure

- Event Logging
- Predictive Failure Analysis
- Calibration Management
- Calibration Checking

Run

- Calibration Check
- Diagnostics

Load

- Factory Defaults

Consult Chapter 3 of the JAGXTREME technical manual for an explanation of each menu items.

Documentation

Clicking on the **Documentation** icon can be used to link to your own document. This is done by entering the local PC file path or Internet URL to the document. The link is saved to the JAGXTREME terminal. The JAGXTREME terminal's web server redirects the local computer's browser to the document. Typically, the configuration would point to the technical manual stored locally on the PC or on a CD. The terminal must be in the Program Mode to configure the documentation.

Help

Clicking on the Help icon links the end-user to the **Help** files. Additional Help Files can be linked in a manner similar to that used for Documentation, above.

5 Installing and Launching JagXFILES

The documentation CD-ROM included with the JAGXTREME terminal includes JagXFILES, a utility that allows for the uploading and downloading configurations and JAGBASIC programs via a web browser. It simulates the embedded web server in the JAGXTREME terminal, allowing the end user to create individual configurations without connection to an actual JAGXTREME terminal.

Hardware and Software Requirements

A PC with:

- Windows 95/98/NT/2000 Operating System
- Internet Explorer 4.0 or higher
- Ethernet card or modem
- Networking and Dial-Up Networking configured if using a modem
- Ethernet or modem cable for JAGXTREME terminal

Installing JagXFILES

JagXFILES is located on the CD-ROM that accompanies the JAGXTREME terminal. Simply open the JagXFILES folder and double-click on Setup.exe to launch the program.

Browser and JAGXTREME Setup

Refer to the networking section of the JAGXTREME terminal technical manual for setup information. Once the web server can be accessed, JagXFILES can communicate to a JAGXTREME terminal. Note: Internet Explorer must be configured to bypass a proxy server for the IP address of the local computer in order for JagXFILES to work.

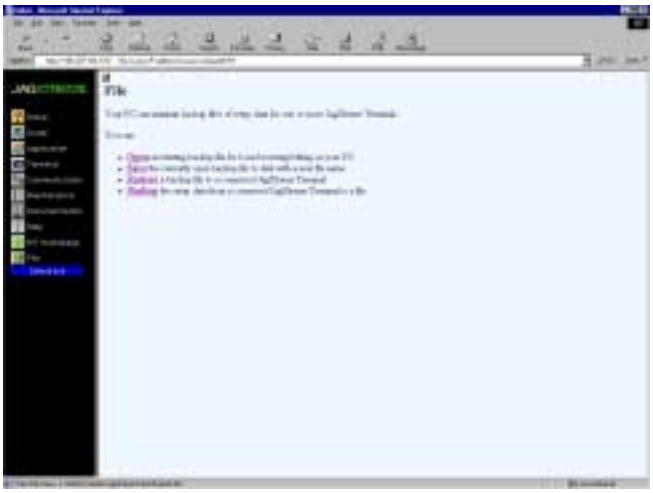
Operating JagXFILES

Clicking Start, Programs, Mettler-Toledo, JagXfiles launches JagXFILES. Note that JagXFILES is a web server, and cannot be operated while another web server is running on your PC. Some operating systems automatically launch a personal web server on power up. This server must be disabled before launching JagXFILES.

Next, launch your browser and enter the IP address of the computer on which you are working in the browser's address line. Note: If you are not sure about your IP address, right click on the JagXFILES icon in the system tray and select "IP Address Help". This will display your computer's IP address. You can also connect to JagXFILES using your computer's name instead of its IP address if your system name services.

Menu Items

The Navigation Bar menu icons that appear when using JagXFILES are unchanged from those shown when connected directly to the JAGXTREME terminal's embedded web server with the exception of the file icon. The file icon leads to the screen shown below. (Note: Some of the features that are available via the embedded web server are not configurable using JagXFILES.)



Open

This function allows the user to open an existing saved configuration file for local editing on a PC, or for downloading to a JAGXTREME terminal. To create a new custom configuration, open the default.dmt (left side of the screen), make the desired changes, and then save the file as a different file name (see Save below). The file can be downloaded to a JAGXTREME terminal or saved for future use.

Save

This function allows the user to save the currently open configuration file to a disk with the existing name or a new file name. The user can open the default.dmt or any existing configuration file, make modifications and then save it as a new file.

Restore

This function allows the user to "download" a configuration to the JAGXTREME terminal via Ethernet or modem. The user can create one file for multiple JAGXTREME terminals then download it to each terminal, reducing the time it takes to configure multiple JAGXTREME terminals.

Backup

This function allows the user to "upload" a JAGXTREME terminal configuration to a local PC file. It can then be used to configure other JAGXTREME terminals or to restore a configuration in the event of a hardware failure.

All Other Menu Items

All Other Menu Items: Consult the JAGXTREME technical manual for configuration information.

6 JAGXTREME Terminal Operations

Overview

Detailed instructions for operators using the JAGXTREME terminal are found in the JAGXTREME User's Guide. However, the following information provides a brief overview of how to operate the terminal

Keypad Operation

- **NUMERIC keys** are used to input numbers or to enter alphabet characters and the symbols that appear on the keys.
- **DECIMAL POINT** (.) inserts a decimal point as necessary. It is also used to enter the symbols "–", "/", and "=".
- **SPACE** (SP) inserts a space where necessary. It is also used to enter the symbols "*", "(", and ")".

- **FUNCTION** (F) accesses various functions depending on the JAGXTREME terminal's setup configuration including:

  Switch Units—If enabled, switch units allows for changing of the top weight display unit of measure.

  Recall Tare—If the terminal is in the net mode, recall tare allows the tare value to be recalled on the top weight display.

  Recall Gross—If the terminal is in the net mode, recall gross allows the gross weight value to be recalled on the weight display.

  Enter Setup—Enter setup allows access to the program blocks in setup mode. S2-1 on the Controller board must be OFF to allow access.

- **MEMORY** (M) accesses various memory functions depending on the JAGXTREME terminal's setup configuration including:

  Prompt List—Prompt lists permit data entry into a user-defined prompt list, which was created through the Configure Memory program block in setup.

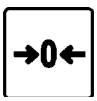
  Consecutive Number—This feature displays the current consecutive number. You can also reset the consecutive number.

  Enter Setpoint—If accessed, this feature allows entry of the setpoint cutoff values that are assigned to the active scale.

  Time—The time feature displays the clock and allows adjustment of the time.

  Date—The date feature displays the date and allows adjustment of the date.

- **SELECT** (S) scrolls through and displays items in option lists. This key also selects a scale to be displayed for networked terminals or two-scale terminals.



- **ZERO** (0) zeroes the scale or allows you to exit to the previous level in setup mode.

- **ESCAPE** (ESC) exits an operating mode, exits a sub-block programming level to the level above, or recalls previously stored data.

- **TARE** (T) performs a pushbutton tare function if enabled in setup.

- **CLEAR** (C) clears a tare value and returns the scale to gross mode. The CLEAR key also functions as a backspace/delete when entering data from the keypad.

- **ENTER** acknowledges a prompt, opens program blocks and sub-blocks, and accepts data entered from the keypad. ENTER also initiates a demand print output.

Alphabetic and Special Character Entry

1. Press the numeric key with the desired letter. The number is displayed.
2. Press SELECT until the desired letter appears.
3. Continue to the key containing the character you want and repeat steps 1 and 2.
4. When you have finished entering your response, press ENTER.

Using a PC Keyboard

You can attach a keyboard to the JAGXTREME terminal for quicker alphanumeric data entry and to access other characters and lowercase letters. The JAGXTREME Controller board has a PC keyboard controller and plug-in connector to support a keyboard.

The PC keyboard and JAGXTREME keypad send the same data to the terminal and operate concurrently. For example, the numeric keys on the keyboard and keypad have the same ASCII value and send the same numeric data. The following shows other keystroke equivalents for keyboard and keypad.

Keyboard	Keypad
F5	ZERO
F6	FUNCTION
F7	SELECT
F8	CLEAR
F9	TARE
F10	MEMORY
ESC	ESCAPE
ENTER	ENTER

The backspace key on the PC keyboard functions as a backspace/delete key when entering data. The keyboard supports NUM LOCK and CAPS LOCK.

Normal Operating Mode

The terminal goes through a power-up sequence when it is turned on. This may include a countdown timer to give it a sufficient warm-up period before it advances to normal operating mode. After power up, the normal operating mode is active.

The terminal's top weight display shows the current gross or net weight values. The top display annunciators indicate the status of the display and the weighing mode (NET or GROSS). The bottom display shows the current unit of measure in normal operation mode. If enabled, the lower display shows the tare value or auxiliary units in net mode.

The following table illustrates JAGXTREME terminal's display conditions.

Normal Weight Display		
Condition	**Top Display Data Bottom Display Data**	**Display Example**
GROSS mode	gross weight units Gross	189.8 lb GROSS
NET mode Pushbutton tare active Display tare enabled	net weight tare units TARE	100.2 189.8 lb TARE
NET mode Preset tare active Display tare enabled	net weight tare units PT	190.0 100.0 lb PT
NET mode Display tare disabled	net weight units NET	100.2 lb NET

In a POWERCELL scale in run-flat mode, after a load cell has been detected, "est" is displayed in the lower display to indicate the weight is estimated weight.

Operator Functions

Zero the Scale

If Pushbutton Zero is enabled, you can press ZERO to establish a new zero center of reference for the scale when in gross mode.

1. Press the ZERO key. One of the following situations occurs:

- If Pushbutton Zero is disabled, the lower display reads **ZERO INHIBITED**, and returns to Normal Operating mode.
- If Pushbutton Zero is enabled and the scale is in net mode, the lower display reads **ZERO REQ FAILED**, and returns to Normal Operating mode.
- If Pushbutton Zero is enabled and the residual weight on the scale is greater than the Pushbutton Zero range, the lower display reads **ZERO REQ FAILED**. In this case, a new zero value cannot be established using the ZERO key. The terminal returns to Normal Operating mode.

- If Pushbutton Zero is enabled and residual weight on the scale is within the Pushbutton Zero range, the lower display reads **SCALE ZEROED.** The terminal returns to Normal Operating mode.

Tare Operations

Pushbutton Tare

Pushbutton tare compensates for weight (usually an unknown quantity such as an empty box or other container) on the weighing platform with a single keystroke and switches the terminal to net mode.

If Pushbutton Tare is Enabled:

1. Place a load to be tared on the scale platform and press the TARE key on the keyboard. The upper display area reads **0.0** with the net annunciator illuminated. The tare weight is displayed on the lower display if Display Tare is enabled.
2. Place the load to be weighed on the platform. The net weight of the load is displayed in the upper display area.
3. Clear tare by pressing CLEAR. The terminal returns to gross mode, displays the weight on the platform in the upper display area, and clears tare weight from the lower display, if Display Tare is enabled.

Example: Pushbutton Tare and Display Tare Enabled

The operator places an empty container on the scale platform and presses TARE. The terminal records the weight (25 pounds) in the lower display as 25.0 lb TARE. The operator fills the container with 50 pounds of material. The terminal displays the net weight of the load in the container in the upper display as 50.0 with the NET annunciator lit. When the filled container is removed from the platform, the operator presses CLEAR. The terminal returns to gross mode.

Preset (Keyboard) Tare

Preset tare or keyboard tare compensates for a known tare weight on the scale. Preset tare is used when the net weight of contents in a filled container must be determined and the tare weight is known.

If Preset (KB) Tare is Enabled:

1. Place the load on the platform. The upper display shows the gross weight. Be sure you know the weight of the portion to be compensated for by preset tare.
2. Use the numeric keys to enter the known tare weight. Press ENTER. The net weight is displayed in the upper area with an annunciator indicating NET. The tare weight will be displayed on the lower display if Display Tare is enabled.
3. Clear tare by pressing CLEAR. The terminal returns to gross mode, displays the gross weight on the platform in the upper display area, and clears the tare weight from the lower display if Display Tare is enabled.

Example: Preset Tare and Display Tare Enabled

A loaded truck (80,000 pounds) is driven on to a weigh station platform. The operator enters the known weight of the truck (17,500 pounds). The terminal displays the tare weight in the lower display as 17500 lb PT. The net weight of the truck's contents is shown in the upper display (62,500 pounds) with the NET annunciator lit. When the truck is driven off the platform, the operator presses CLEAR to clear the tare value and return the terminal to gross mode.

Auto Tare

Auto tare automatically tares the indicator when a stable load on the platform exceeds a preset gross weight threshold value. A gross weight reset value is also entered to determine when the terminal will be "rearmed" to do another auto tare. The threshold values are configured through the Application Environment program block.

If enabled in the program block, the JAGXTREME terminal checks the stability of the load before rearming auto tare. You may want to disable motion check if the load will not become stable, as when rapidly weighing one item after another.

If Auto Tare is Enabled:

The operator does not have to press any key to perform tare if Auto Tare is enabled, but must press CLEAR to return the terminal to gross mode.

1. Place a load on the scale platform that exceeds the tare threshold value. When the scale is stable, the terminal automatically tares the scale to net zero and displays the actual tare weight in the lower display area if Display Tare is enabled.
2. Place the load to be weighed on the platform. The terminal displays the net weight in the top display area with an annunciator indicating NET.
3. Clear tare and return to gross mode by pressing the CLEAR key.
4. When the weight is removed and the reset threshold is passed, the scale rearms for the next sequence.

Example: Auto Tare and Display Tare Enabled

The auto tare threshold value has been set to 100 pounds through the Application Environment program block. The operator places on the platform an empty container that weighs more than 100 pounds. The terminal tares the scale and displays the container's actual weight in the lower display (125 lb TARE). The operator then fills the container and records the net weight of the load.

When the filled container is removed and the weight on the platform falls below the reset threshold value, the terminal re-arms and is ready for the next container. If check motion is enabled, the terminal will not re-arm unless the weight on the scale settles below the reset threshold value.

Auto Clear Tare

Auto clear tare can be used in conjunction with any of the tare options described above. This feature automatically clears the tare and returns the terminal to gross mode when weight on the platform has exceeded then fallen below a preset gross weight threshold value. The check motion parameter can be enabled to ensure the scale weight is stable before automatically clearing tare.

Recall Tare

The JAGXTREME terminal allows you to recall and display the tare value in the upper display area while in net mode. This may be useful if Display Tare is disabled or if auxiliary units are enabled. Tare recall is accessed through the FUNCTION key

Recall Gross

The JAGXTREME terminal allows you to recall and display the gross weight value in the upper display area while in net mode. This may be useful if you need to see the gross weight but do not wish to clear the current tare value. Gross weight recall is accessed through the FUNCTION key.

Tare Interlock

Tare interlock imposes some restrictions on tare operations. If tare interlock is enabled, tare may be cleared only at gross zero, and multiple tares are prohibited.

Tare Display

In each of the tare operations described, the tare weight has been displayed in the lower display area on the terminal. You can disable the tare display through the Application Environment program block.

Net Sign Correction

Net Sign Correction delays the decision of which weighment is the gross weight and which is the tare weight until the operator prints the ticket. At that time, the terminal compares the two weighments and takes the lower one as the tare weight. The net weight is always a positive value.

Print Operations

Demand Print

If a demand mode connection is configured, demand printing is initiated when an operator presses the ENTER key in normal operating mode or through an external interface such as a discrete input port or optional Allen-Bradley interface. If no conditions exist to inhibit printing, output will be sent to the connected printer. The terminal displays the message **PRINTING** in the lower display.

If a demand mode connection is not configured, the terminal displays **PRINT INHIBITED** in the lower display. This error message is also displayed if demand printing is requested while weight on the scale is unstable.

Minimum Print

The minimum print parameter prohibits data output if gross weight on the scale is below a threshold value configured in setup. If you press ENTER to initiate printing with the scale weight below the threshold value, the terminal displays **PRINT INHIBITED** on the lower display.

Print Interlock

Print interlock prevents multiple print requests for a single weighing transaction. Print threshold and reset values determine operation of print interlock. A check motion before reset parameter can be enabled. These parameters are configured through the Configure Serial program block. If print interlock is enabled and conditions of print interlock are not satisfied, the terminal displays **PRINT INHIBITED**.

Auto Print

Auto print enabled in conjunction with print interlock allows printing to occur without operator action. The terminal automatically initiates data output when gross weight on the scale settles above the print threshold value. Auto print is re-armed when the weight falls below the reset threshold value. A check motion before reset parameter can also be configured for auto print.

Continuous Output

Serial ports can be configured to output data continuously. In continuous mode, weight data is transmitted at the following rates:

- 17 times per second in Process Application High mode*
- 10 times per second in Process Application Mid mode*
- 5 time per second in Process Application Low mode* unless A/D update rate of scale type is slower. In that case, the continuous output will be at A/D update rate.

A status bit in the fixed format changes state when a print request is received. See the appendix for more information on the continuous data format.

MEMORY Key Operations

Prompt List

The JAGXTREME terminal's prompt list feature is an interactive means of facilitating specific data input from the operator. A prompt list is configured in the Configure Memory program block. Each prompt can be configured to accept numeric, alphanumeric, or tare input. A prompt list can contain up to 20 steps.

To use a prompt list:

1. In normal operating mode, press the MEMORY key, then press ENTER at the **Prompt List?** prompt to access your list.
2. Respond to the prompt step shown in the lower display area by entering the required data or press ENTER to continue to the next step. You must press ENTER after data entry to continue.
3. Press ENTER after the final prompt step to return to normal operating mode. You can press ESCAPE at any time to exit from a prompt list.

Consecutive Numbering

The JAGXTREME terminal maintains a consecutive number (CN) and can assign a unique number to each transaction. The CN automatically increments by one upon print initiation through a specified port

To view the current CN:

1. Press the MEMORY key.
2. Press SELECT until the current CN is displayed as **CnNbr = XX**.

To reset the CN:

1. With the current CN displayed (steps 1 and 2 above), press ENTER.
2. At the **Reset ConNbr?** prompt, press SELECT to choose **Y(es)** or **N(o)**. Press ENTER. If **Y(es),** confirm your decision at the **Are You Sure?** prompt by selecting **Y(es)** again. The consecutive number will be returned to the reset value configured in setup.

Setpoints

Refer to the section entitled Outputs in Appendix 2 for setpoint wiring information.

The JAGXTREME terminal can control up to twelve setpoints. Setpoints can be assigned to any of the discrete output ports. Status of Setpoints 1- 8 is available through the Allen-Bradley discrete read option.

For a terminal connected to a single scale, all setpoints are related to the displayed scale weight, net or gross weight, or rate depending on the scale mode. If setpoints are required for gross weight only, METTLER TOLEDO recommends disabling tare.

For a JAGXTREME terminal connected to two scales, setpoints are assigned to scale A or B in the Configure Discrete program block. To enter setpoint values:

1. Press SELECT and choose the appropriate scale (if two scales are connected).
2. Press MEMORY, then press SELECT until the prompt **Enter Setpoint?** is displayed. Press ENTER to access setpoints.
3. Press ENTER at the **Select? SP1** prompt to access setpoint 1, or press SELECT to access another setpoint. Press ENTER.
4. Enter the setpoint value, then press ENTER.
5. At the **Preac?** prompt, enter the preact value. The preact value compensates for material that may come onto the scale after the setpoint is reached.
6. At the **Dribl?** prompt, enter the dribble value. Dribble marks the point where a dual speed setpoint switches from fast-feed to slow-feed.
7. At the **Tol?** prompt, enter the setpoint tolerance value.
8. Repeat steps 3 and 4 to enter another setpoint or press ESCAPE to exit setpoints.

Preact, dribble, and tolerance values are relative to the setpoint. They are not absolute values. The dribble value is equal to the target value minus the dribble and preact values.

Time

The terminal's internal battery-backed time can be viewed or set using the MEMORY key. To view or reset the time:

1. Press MEMORY, then press SELECT until the time is displayed.
2. Press ESCAPE to accept the current time and exit, or press ENTER to set the clock. If you are setting the clock:
   - At the **Hour?** prompt, type the correct hour of day according to the selected time format. Press ENTER.
   - At the **Minute?** prompt, type the correct minutes, then press ENTER.
   - If the selected format supports seconds, type the correct value at the **Seconds?** prompt. Press ENTER.
   - If a 12-hour format is selected, press SELECT at the **AM/PM?** prompt followed by ENTER when the desired designation is displayed.

Date

The JAGXTREME terminal has a battery-backed date function. To view or reset the current date:

1. Press MEMORY, then press SELECT until the date is displayed.
2. Press ESCAPE to accept the current date and exit. Press ENTER to set the date. If you are setting the date, complete the date fields as prompted. Press ENTER after each field to continue. The order is determined by the selected date format.
3. Press ENTER after the last date prompt to exit.

FUNCTION Key Operations

Switch Units

To switch units:

Press FUNCTION then press ENTER at the **Switch Units?** prompt. The unit automatically switches to the alternate selection and displays the current unit of measure in the upper display area.

The recalled tare value is a "snapshot" of the actual weight. It is not an active weight.

Recall Tare

Recall tare allows the current tare value to be shown in the upper display area. You must be in net mode. To recall tare:

1. Press FUNCTION then press SELECT until the **Recall Tare?** prompt is displayed.
2. Press ENTER. The terminal displays the recalled tare value in the upper display.
3. Press ESCAPE to return the display to net weight.

The recalled gross value is a "snapshot" of the actual weight. It is not an active weight.

Recall Gross

Recall gross allows you to view a snapshot of the current gross weight in situations when it is undesirable to clear the tare value. You must be in net mode.

To recall gross:

1. Press FUNCTION then press SELECT until the **Recall Gross**? prompt is displayed.
2. Press ENTER. The JAGXTREME terminal displays the recalled gross weight value.
3. Press ESCAPE to return the display to net weight.

Enter Setup

You can access the JAGXTREME terminal's setup programming blocks only if the terminal is used in non legal-for-trade applications and switch 1 is off on the Controller board. To enter setup:

1. Press FUNCTION then press SELECT until the **Enter Setup?** prompt is displayed.
2. Press ENTER to access the program blocks.

JagBASIC Program Manual Operation

If enabled in setup, JagBASIC programs can be started manually using the FUNCTION key. Please refer to the JagBASIC Programmer's Guide that comes with the Programmer's Kit for operating instructions and more information on using JagBASIC.

Scale Selection

Scale ID is programmed in the Application Environment program block and should clearly identify the associated scale.

It the JAGXTREME terminal's keypad does not respond when keys are pressed, it may have been selected by another JAGXTREME terminal in the network. To "free" this unit, locate the JAGXTREME that is controlling the keypad, press ESC, and then select another JAGXTREME terminal in the network.

You can connect up to four scales and a summing scale to each JAGXTREME terminal. Additional scales may be accessed over an Ethernet network.

If the JAGXTREME is configured as a single-scale unit that does not have access to other scales, the terminal displays **SELECT INHIBITED** when the SELECT key is pressed while in normal operating mode.

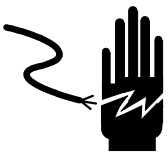
If multiple scales are connected and the JAGXTREME is in normal operating mode, select another scale as follows:

1. Press SELECT. The upper display reads **------** and the lower display reads **Scale?**
2. Press SELECT to view the available scales. Then press ENTER at the desired scale.

The JAGXTREME terminal is now "connected" to that scale and its scale-number annunciator is lit. The selected scale remains "connected" until another scale is chosen from the list of scale IDs.

3. To select another scale, press SELECT and repeat step 2 above.

7 Service and Maintenance



⚠ WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

Tools and Supplies

Keep the following items on hand for service and maintenance of the JAGXTREME terminal. Common hand tools may also be required.

- Volt-Ohm meter
- Single DigiTOL load cell simulator 0917-0178 (if a DigiTOL scale is used)
- Analog load cell simulator - Part Number 82451 00A (variable) or 100865 00A (10-step) if an analog load cell scale is used
- Soft, lint-free cleaning cloth
- Antistatic bags for PCBs - Part Number 14006300A (5x8)
- Antistatic wrist strap and mat
- METTLER TOLEDO screwdriver Part Number A14476100A
- Phillips head screw driver
- Allen wrench (2 mm)

Cleaning and Regular Maintenance

Wipe the keyboard and covers with a clean, soft cloth that has been dampened with a mild glass cleaner. Do not use any type of industrial solvent such as toluene or isopropanol (IPA) as they may damage the terminal's finish. Do not spray cleaner directly onto the terminal.

Regular maintenance inspections by a qualified service technician are recommended.

Troubleshooting

If problems occur, do not attempt to repair the scale or terminal before you have determined the source of the problem. Record as much information as possible about what has happened including any error messages and physical responses of the terminal and/or scale. If the JAGXTREME terminal is malfunctioning, perform the troubleshooting tests detailed in this chapter to identify the problem.

Status Lights

The two red lights on the back of the Analog A/D board are diagnostic tools and indicate the status of the terminal. The following table describes the possible light indications. Refer to the Error Codes and Actions section for corrective action suggestions.

A	B	Status
Blink	Blink	OK
On	On	RAM Error
On	Off	EPROM Error
Off	On	MELSI Error
Off	Blink	MMR Cell Error

The Allen-Bradley option board has a status LED with three modes:

- ON—indicates normal operation
- Flashing—indicates the PLC is in Program Mode
- OFF—indicates a communication problem with the PLC

Error Codes and Actions

The following table lists the JAGXTREME terminal's error messages, probable cause, and remedy.

Error Message	Description	Probable Cause	Remedy
AB_BAD_DISP_MODE	Bad Display Mode Command in Allen-Bradley Block Transfer Message.	PLC Programming Error.	Correct PLC Program.
AB_BAD_FLD_NAME1	Bad Shared Data Field Name in field 1 of Allen-Bradley Block Transfer Message.	PLC Programming Error.	Correct PLC Program.
AB_BAD_FLD_NAME2	Bad Shared Data Field Name in field 2 of Allen-Bradley Block Transfer Message.	PLC Programming Error.	Correct PLC Program.
AB_BAD_FLD_NAME3	Bad Shared Data Field Name in field 3 of Allen-Bradley Block Transfer Message.	PLC Programming Error.	Correct PLC Program.
AB_BAD_FLD_NAME4	Bad Shared Data Field Name in field 4 of Allen-Bradley Block Transfer Message.	PLC Programming Error.	Correct PLC Program.
AB_WRITE_DISABLE	PLC attempted to write a Shared Data Field that is write protected. When the JAGXTREME is in legal-for-trade mode, restricted Shared Data fields cannot be written.	PLC Programming.	If necessary, you can access restricted parameters by removing the Legal for Trade jumper.

Error Message	Description	Probable Cause	Remedy
ALC_EE_CHKSM_ER	A Checksum Error was detected in accessing the Scale Calibration parameters on the Analog Load Cell Card.	Static, power problems, inductive noise. Bad EEPROM.	Reset to Factory in Scale Interface Menu. Recalibrate scale. If problem persists, replace the Analog Load Cell card.
ALC_EE_NO_ACCESS	The JAGXTREME terminal cannot access Scale Calibration parameters on the Analog Load Cell card.	You have configured the JAGXTREME terminal for a nonexistent Analog L/C card; the Ana log L/C card is not jumpered properly; the Analog L/C is not seated properly; or the Analog L/C card is not working.	Check your configuration; check the jumpers on the L/C card; reseat the L/C card. If none of these actions correct the problem, put in a new Analog L/C card.
ALC_EEPROM_ERROR	Analog L/C EEPROM memory error.	Static, power problems, inductive noise. Bad EEPROM.	Re-power and recalibrate. Check for good power, suppress noise; take static precautions. Replace Analog PCB.
ALC_EPROM_ERROR	Analog L/C EPROM memory error.	Defective Analog PCB.	Replace appropriate Analog PCB.
ALC_MELSI_ERROR	Analog load cell A/D error.	A/D error has occurred.	Re-power the unit. Check with weight simulator. If error persists, replace Analog PCB.
ALC_NO_RESPONSE	Analog load cell A/D communications error.	A/D error has occurred.	Re-power the unit. Check all ALC jumpers. Check with weight simulator. If error persists, replace Analog PCB.
ALC_RAM_ERROR	Analog load cell A/D RAM error.	Static, power problems, inductive noise. Bad Analog PCB.	Re-power and recalibrate. Check for good power, suppress noise; take static precautions. Replace Analog PCB.
ALC_RESPONSE_ERR	Analog Load Cell A/D communications response error.	Internal error.	Re-power the unit. Check with weight simulator. If error persists, replace Analog PCB.
ALC_UNDEFINED_ERR	Analog Load Cell A/D undefined error.	Analog load cell A/D memory error has occurred.	Verify programming and jumpers for Analog PCB are correct. If error persists in software prior to “B” revision, upgrade software to “C” revision or later.
ETHERNET_BAD_ADDRS ETHERNET_DUP_ADDRS	You have configured the Ethernet address with either a duplicate address with another node on the network or an illegal Ethernet ad dress.	The Ethernet address is not set up properly.	Check network address on JAGXTREME terminal.
ETHERNET_TEST_ERR	The standard power up testing of the Ethernet adapter failed.	Ethernet Adapter Failure.	Re-power up the JAGXTREME terminal. If problem persists, replace the controller card.

Error Message	Description	Probable Cause	Remedy
BAD_NUMBER_CELLS	The terminal has been configured with an illegal number of load cells in a POWERCELL scale or J-Box scale.	Improper setup.	Check number of load cells configured for both scales. Correct the setup.
BRAM Bad - Rst?	Battery backed RAM error.	Setup parameters in Battery Back RAM have been corrupted. Most likely causes are too long of storage for the terminal, power removed from the terminal memory too long, battery failure, or hardware failure.	Respond Y(es) to reset to factory settings. Reprogram setup parameters. If problem persists, you may have to replace battery, power supply, or controller card.
BRAM CKSUM ERROR	Setup variables corrupt.	Electrical malfunction. Power removed from the terminal memory for too long. The battery and super-cap on the controller card drained.	Press ENTER to continue. Check setup parameters for desired settings.
BRAM Err - Rst? Y (Will appear during power-up sequence only after loading new software.) BRAM VERSION ERR	Different program version detected. Storage locations for setup parameters and memory locations have been moved in a new software up date.	New software version has been downloaded to the JAGXTREME terminal.	Press ENTER to accept the reset default Y response. All parameters will be reset to factory default values. Reprogram the terminal's setup parameters.
CALIBRATION_ERR	Calibration error.	Improper setup or calibration sequence, or bad load cell.	Check wiring. Check with simulator. Check load cell and recalibrate. Verify calibration setup parameters.
Can't redim. var	JagBASIC programming error.	Once a JagBASIC application has declared a variable or an array, it cannot be re-dimensioned to a different size array.	Correct JagBASIC program.
CELL CALIB ERROR	CELL CALIBRATION ERROR	The calibration counts for the cell are in error,	Either the POWERCELL is bad or you did an invalid scale calibration.
CELL ZERO ERR	CELL ZERO DRIFT FAILURE	An individual POWERCELL Zero has exceeded its established zero limits	Check the individual POWERCELL indicated in error message. You should perform diagnostics checks on the cell. You may have to replace the cell.
CELL ZERO OK	, CELL_ZERO_DRIFT_OK	, Previous cell zero drift error has now gone back within the established limits	There may still be a potential POWERCELL hardware problem. You should perform diagnostics checks the cell.

Error Message	Description	Probable Cause	Remedy
CHANGE PWCEL ERR	There was an error when attempting to change a POWERCELL address.	Communications error with POWERCELL.	Run the cell diagnostics to verify the POWERCELL address. If it is still at its old address, try changing the address. If the problem persists, replace the POWERCELL.
CLEAR_TARE_AT_0	According to the scale setup parameters, the scale must be at gross zero in order to clear tare.	If you select Tare Interlock, the scale must be at gross 0 in order to clear tare.	Check local Legal For Trade requirements. If you do not want this feature, turn off the Tare Interlock selection.
Command error	An error occurred in trying to access a file from the JagBASIC interpreter.	Most likely, you tried to access a file that does not exist. It is also possible that the file system has been corrupted.	Use the DIR command from the JagBASIC Interpreter to verify the directory of the RAM disk. If the file system has been corrupted, you need to re-initialize it from the JagBASIC setup menus and rebuild it from the backup files you are maintaining on a PC.
BRAM Power Fail!	The JAGXTREME terminal detected low power supply voltage while attempting to write permanent data to BRAM Shared Data.	You have an early version of the JAGXTREME terminal power supply or a bad power supply.	Upgrade the power supply on the terminal with the latest version.
CONECT_NOT_ FOUND	Serial connection not found.	Improper serial setup.	Reset serial programming block to factory defaults. Reprogram serial setup parameters.
CTL_EE_CHKSM_ERR	Checksum error on accessing the EEPROM on the Controller Board. This EEPROM holds the calibration parameters for single-cell DigiTOL and DJBox scales.	Electrical noise, static discharge, or bad EEPROM chip.	Recalibrate DigiTOL scale. If problem persists, replace the EEPROM on the controller board or the controller board itself.
CTL_EE_NO_ACCESS	Physical error on accessing the EEPROM on the Controller Board. This EEPROM holds the calibration parameters for single-cell DigiTOL and J-Box scales.	Hardware malfunction.	Power down/up the terminal. If problem persists, replace the EEPROM on the controller board or the controller board itself.
DEST_NOT_CONNECT	The remote JAGXTREME terminal that is the destination for a cluster communications message is not connect ed.	The remote terminal that is the destination for a cluster communications message is not connected.	Verify network setup; verify Ethernet wiring, addresses, and terminations.
Device error	JagBASIC programming error.	The JagBASIC program has referred to an illegal device or a device that is not open.	Correct the JagBASIC program.
DIM not array	JagBASIC programming error.	The JagBASIC program has attempted to dimension a variable that is not an array.	Correct the JagBASIC program.

Error Message	Description	Probable Cause	Remedy
Divide by zero	JagBASIC programming error.	The JagBASIC program has attempted to divide a number by zero.	Correct the JagBASIC program.
DLC_ERR_NO_COMM	No communication or an intermittent communication failure to the DigiTOL load cell.	Bad DigiTOL base, interconnect cable, or serial port.	Check voltages. Check with simulator. Verify serial out put port. Check cable/cell.
DLC_BAD_PROTOCOL	The JAGXTREME has detected a bad protocol exchange with a DigiTOL load cell.	Noise being generated on cable between the terminal and DigiTOL load cell.	Check cabling, grounding, and connections at the terminal and at DigiTOL base.
DLC_INVALID_CHNL	DigiTOL load cell in valid channel.	Communications port as signed to the DigiTOL load cell is invalid.	Check COM port selection in setup. If setup appears correct, reset JAGXTREME to factory setup. Reprogram the setup parameters.
DLC_PARITY_ERROR	Parity error has been detected in communication between terminal and DigiTOL load cell.	Possible bad load cell, in correct wiring, or electrical interference.	Check DigiTOL base, wiring, grounding, and power source.
EE A CErr - Rst? Y EE B CErr - Rst? Y	EEPROM Checksum Error. The scale calibration parameters stored on the EEPROM have been corrupted.	Hardware Failure.	Press ENTER to accept the reset default Y response. You must recalibrate JAGXTREME scale.
EE A VErr - Rst? Y EE B VErr - Rst? Y EE VERSION ERROR	Version number in the EEPROM does not match that expected by the operating system.	Terminal was calibrated with an earlier version of the operating system.	Press ENTER to accept the reset default Y response. You must recalibrate the scale.
EE Reset Error	An attempt to access the EEPROM for the selected scale has failed.	Terminal improperly configured with nonexistent scale devices. It can be also be caused by an improperly seated scale board or a hardware malfunction on the scale board.	Check your scale configuration in setup. You may have to do Reset to Factory. Try reseating the boards. If these efforts fail, replace the scale board.
EF	Functional error in the weighing cell of an MMR (IDNET) base.	Static, power problems, inductive noise or unexpected operation.	Press the ESC key to continue. Take steps to eliminate probable cause.
EL	A command transmitted to an MMR (IDNET) base has been received, but cannot be executed.	Static, power problems, inductive noise or unexpected operation.	Press the ESC key to continue. Take steps to eliminate probable cause.
END_OF_FILE	End of File encountered while reading Shared Data.	End of File encountered while reading Shared Data.	None.
END_OF_SHIFT_ADJ	Last load cell or pair completed during shift adjust procedure.	Last load cell or pair completed during shift adjust procedure.	None.

Error Message	Description	Probable Cause	Remedy
ERROR in line	JagBASIC programming error. This message indicates the line in which the error occurred.	JagBASIC programming error. There will also be an error code indicating the type of programming error.	Correct the JagBASIC program.
ES	A command or string transmitted to an MMR (IDNET) base has been received, but is not a recognized command.	Static, power problems, inductive noise or unexpected operation.	Press the ESC key to continue. Take steps to eliminate probable cause.
ET	A transmission to an MMR (IDNET) base was received with a transmission error such as a parity, stop- or start-bit, or UART over flow error.	Static, power problems, inductive noise or unexpected operation.	Press the ESC key to continue. Take steps to eliminate probable cause.
Event def error	JagBASIC programming error.	There is a programming error in defining an event.	Correct JagBASIC program.
File open failed	JagBASIC programming error.	Most likely, the JagBASIC program has attempted to open a nonexistent RAM disk file or serial communications device.	Correct JagBASIC program.
FOS_RESP_TIMEOUT	The Formatted Output Server (FOS) generates demand print and continuous print messages. They may be directed to a local or remote serial port. This error occurs when the FOS does not receive a response serial port driver within a specified amount of time.	This error usually occurs when print data is directed to a remote serial port. If the Ethernet LAN is disconnected while the FOS is waiting for a response, this error may occur.	Check Ethernet wiring.
FTP COMM ERROR	FTP COMMUNICATION ERROR	An FTP communication error occurred,	If the problem persists, carefully record the conditions that cause the error and contact the METTLER TOLEDO Technical Services.
FTP COMMAND ERR	FTP COMMAND ERROR	The FTP Server received a command that it does not support.	Do not use the command that caused this error.
FTP FILE ERROR	FTP FILE ERROR	The FTP Server detected an error in accessing a file	If the problem persists, carefully record the conditions that cause the error and contact the METTLER TOLEDO Technical Services.
IDN BUFF OVRFLOW	Excessive data.	Unexpected operation.	Power down, then up. If error still occurs, reset the JAGXTREME terminal to Factory settings and reprogram setup parameters.
IDN EPROM ERROR	Damaged EPROM chip.	Electrical malfunction.	Replace IDNet PCB.

Error Message	Description	Probable Cause	Remedy
IDN NO RESPONSE	No response from base.	Bad wiring or pcb(s).	Check wiring. Replace IDNet PCB. Replace IDNet base.
IDN RAM ERROR	Damaged RAM chip.	Electrical malfunction.	Replace IDNet PCB.
IDN RESPNSE ERR	Unexpected response.	Unexpected operation.	Power down, then up. If error still occurs, reset the JAGXTREME terminal to factory settings and repro gram setup parameters.
Illegal command	JagBASIC programming error.	The JagBASIC program has issued a command that is not a legal command.	Correct the JagBASIC pro gram.
ILLEGL_QUAR_RACK	An illegal quarter rack value has been specified for the Allen-Bradley RIO option.	Invalid setup.	Check the Allen-Bradley set up.
Incomplete line	JagBASIC programming error.	The JagBASIC program contains a line that does not have the full syntax required for a line.	Correct JagBASIC program.
INCRM_CHAIN_TARE	A decreasing chain tare was attempted in a market where only incremental chain taring is permitted.	Chain taring that causes a decrease in the tare weight is not permitted in some markets in legal-for-trade applications. An incremental chain tare is a new tare on top of an already existing tare value where the new tare value is greater than the old tare value.	Check the market setting in setup. Check the “tare interlock” setting in setup. Check the legal-for-trade switch on the controller board. Verify that these are set properly.
Internal Errors 1 Through 13	Various errors.	Programming failure, hardware failure.	Power down, then up. If error still occurs, reset the JAGXTREME terminal to factory settings and reprogram setup parameters. Replace controller or Analog PCB.
Invalid device #	JagBASIC programming error.	The JagBASIC program is referencing a device # that is not open.	Correct the JagBASIC program.
Invalid SD name	JagBASIC programming error.	The JagBASIC program is referencing an invalid Shared Data name.	Correct the JagBASIC program.

Error Message	Description	Probable Cause	Remedy
INVALID_FILE_NAME	There was an attempt to access Shared Data with an invalid file name.	This could be caused by an internal or external access of Shared Data.	Determine if an internal or external access caused the error. If an external access is causing the error correct the PLC or Host PC program. If an internal source appears to be causing the problem, power down, then up. If error still occurs, reset the terminal to factory settings and reprogram setup parameters.
LADDER_EMPTY	Discrete I/O setup error.	User attempted to delete a rung from the ladder that is empty.	Reset discrete configuration to factory and setup discretes.
LADDER_FULL	Discrete I/O setup error.	User attempted to add a rung to the ladder that is full.	Reset discrete configuration to factory and setup discretes.
Line # invalid	JagBASIC programming error.	The JagBASIC program contains a line number greater than 30000 or a duplicate of an existing number.	Correct the JagBASIC program.
Line too big	JagBASIC programming error.	The size of a JagBASIC line is greater than 80 characters.	Correct the JagBASIC program.
LOAD::no filename	JagBASIC programming error.	The LOAD command does not contain a file name.	Correct the JagBASIC command.
Memory find fail	JagBASIC programming error.	The JagBASIC program has exceeded the memory limits of the system.	Reduce memory usage of a JagBASIC program by reducing the number of lines, eliminating unnecessary spaces in the program, reducing the number of variables, or reducing the size of the arrays. When chaining JagBASIC programs, always load largest program first to reduce memory fragmentation.
MODEM CONNECT	MODEM_CONNECT	The modem successfully connected to a remote modem	. This is not an error, but an alert to the event.
MODEM DISCONNECT	MODEM_DISCONNECT	The modem has disconnected from a remote modem after successfully connecting.	This likely not an error, but an alert to the event.
MODEM DIAL ERROR	MODEM DIALING ERROR	An error was detected in sending the dialing command to the modem	You will need to verify the modem setup.

Error Message	Description	Probable Cause	Remedy
MODEM INIT ERROR	MODEM INITIALIZATION ERROR	An error was detected in initializing the modem	Make sure that the modem is powered on and the modem cable is securely attached to both the JAGXTREME and the modem. If the problem persists, you need to verify the modem setup and cabling.
MN THRESHOLD ERR	WEIGHMENT MONITORING THRESHOLD ERROR	Error in setting the weight thresholds used for monitoring weighments	Check your setup for these thresholds.
NETWORK_XMIT_ERR	Ethernet communications transmission error.	Faulty Ethernet addresses, wiring, line termination, or adapter.	Check the Ethernet wiring for bad connections, wiring breaks, or improper line terminations.
NEXT without FOR	JagBASIC programming error.	There is a NEXT statement without the required FOR statement.	Correct JagBASIC program.
No line number	JagBASIC programming error.	The program line does not have a line number.	Correct JagBASIC program.
No Remote Access	JagBASIC programming error.	The program is attempting to access a device that is already in use by a serial connection or by another JagBASIC program in the JAGXTREME terminal cluster.	To access a serial device, remove all serial connections to the device in setup. To share a serial device among JagBASIC programs, set up a scheme where only one program has the de vice open at a time.
No Scale A Type No Scale B Type No Scale E Type	Scale type definition is missing.	No scale type entered in Scale Interface menu.	Go to “Scale Interface” setup menu and set scale type.
NO_CHAIN_TARE	User attempted to take a second or “chain” tare after a tare was already taken.	When the tare interlock is selected in setup, chain taring is illegal in certain markets.	Check the local “legal for trade” requirements. Check the market selection and tare interlock settings in setup. The system will continue to operate properly but will not allow the chain tare.
NO_DISCRETE_CBCK	There are no more discrete callback structures available.	The setup of this system and the JagBASIC application has exceeded this system limit.	Power down, then up. If error still occurs, reset the terminal to factory settings and reprogram setup parameters.
NO_DMD_PRNT_CON	There is demand print connection configured in setup.	No demand print entered in the “Config Serial, Con figure Port” menu.	Change setup parameters.
NO_KEYBOARD_TARE	Keyboard tare disabled.	Keyboard Tare is disabled in the “Application Envn,Tare Operation” setup menu.	Change setup parameters to enable this feature.

Error Message	Description	Probable Cause	Remedy
NO_PUSHBUTT_TARE	Pushbutton tare disabled.	Pushbutton Tare is disabled in the “Application Envn, Tare Operation” setup menu.	Change setup to enable this feature.
NO_PWCEL_OLD_ADR	POWERCELL readdressing error.	When readdressing a POWERCELL, no POWERCELL was found at the specified old address. This problem could be caused by a entering an invalid address or by a POWERCELL communications error.	Run the cell diagnostics to verify the POWERCELL ad dress. If the cell is at its old address, try changing the ad dress again. If the problem persists, you may have to re place the POWERCELL.
NO_SECOND_UNITS	Secondary units not specified.	No secondary units selected in “Application Envn, Alt Weight Units” mode setup.	Change setup to enable the feature.
OFF LINE ERROR	The JAGXTREME terminal on ETHERNET net work not responding	Loss of communication between JAGXTREME terminals	Check Ethernet cabling. Check JAGXTREME terminals on network. Power down, then up affected JAGXTREME terminals.
ON no GOSUB	JagBASIC programming error.	ON statement is present without required GOSUB.	Correct JagBASIC program.
Oper. File Error	Cannot read language messages file.	Unexpected operation.	Power down, then up. If error still occurs, reset JAGXTREME to factory settings and reprogram setup parameters.
OPTION BASE->DIM	JagBASIC programming error.	The program must define the OPTION BASE before dimensioning an array.	Correct JagBASIC program.
Out of data	JagBASIC programming error.	The JagBASIC program has issued more READ commands to initialize system variables than there is data specified in DATA statements.	Correct JagBASIC program.
OUT_OF_COMM_BUFS	Cluster communications error.	The system has exceeded the fixed limit on the number of communication buffers that can be used at one time. Most likely one JAGXTREME is sending messages to a second faster than the second can process them.	Power down, then up. If error still occurs, reset the terminal to factory settings and reprogram setup parameters.

Error Message	Description	Probable Cause	Remedy
OUT_OF_MEMORY	The JAGXTREME software cannot get the dynamic memory it needs to continue running.	The system is using more dynamic “heap” memory than is available or the heap memory has become fragmented.	Reduce the size of a JagBASIC program. Eliminate unnecessary spaces in the program. Reduce the number of variables. Reduce the size of the arrays. When chaining JagBASIC programs, always chain in the largest program first to reduce memory fragmentation. Eliminate unused network connections, serial connections, and printer templates.
OUT_OF_ZERO_RANG	Operator has attempted to zero the scale outside of the legal zeroing range.	The zeroing limits are set up in the “Application Envn, Zero Operation” menu.	Change zeroing range in set up, if necessary.
Overflow	JagBASIC programming error.	A JagBASIC program causes an overflow error by exceeding certain system limits. The maximum size of the “gosub” stack, the “for-next” stack, and the “while-wend” stack is 9 entries each. Overflow errors can also be caused by particular language syntax errors.	Correct JagBASIC program.
PLC_COMM_ERROR	There was a timeout in the communications between the terminal and a PLC. This error is only reported after there has been a successful connection and communication fails.	The most likely cause is improper wiring or wiring termination, or there was a fault at the PLC. Entering and exiting setup at the terminal can also cause this error because the PLC adapter is reset.	Check wiring and wiring terminations. Verify PLC operation. Note: The JAGXTREME terminal will automatically recover communications after an intermittent failure.
Prbus config err	Attempts to configure the Profibus card failed.	Most likely, this error is caused by a Profibus card hardware failure.	If problem persists, replace the Profibus card.
PRINT REQUESTED	The operator has re- quested a Demand Print through the Control Pan el.	None.	None.
PRINT_IN_PROGRES	The operator has requested a second demand print while the first is in progress.	None.	None.
PRINT_NOT_READY	Scale is in motion while attempting to print.	None.	None.
Profbus init err	The Profibus card could not be initialized.	Bad Profibus card.	Replace Profibus card.

Error Message	Description	Probable Cause	Remedy
Program too big	JagBASIC programming error.	First problem: The pro gram exceeds 400 text lines or 18KB. Second problem: This error can also occur while you are typing in a JagBASIC program when the temporary program buffer becomes full.	For the first problem, separate the program into smaller files that can be run independently or chained together. When chaining, always start execution with the largest program to avoid memory fragmentation. For the second problem, save the current program and load it in again. This will cause a larger temporary program buffer to be allocated.
PWC_PROTOCOL_ERR PWC_TIMEOUT_ERR PWC_UNDEFIND_ERR PWC_BUFF_OVFLOW	Communication Error between controller card and POWERCELL card.	Bad POWERCELL card.	If error persists, replace the POWERCELL card.
PWC_CHECKSUM_ERR	Checksum error on firmware on POWERCELL card.	Bad POWERCELL card.	If error persists, replace the POWERCELL card.
PWC_EEPROM_ACCES	Unable to access EE PROM on POWERCELL card.	Bad POWERCELL card.	If error persists, replace the POWERCELL card.
PWC_EEPROM_ERR PWC_EEPROM_CHECK	Checksum error on power scale calibration data stored on EEPROM on POWERCELL card.	New version of JAGXTREME software. Hardware failure caused corruption of EEPROM data.	Recalibrate scale. If problem persists, replace the POWERCELL card.
PWC_NO_ERROR PWC_NO_ERROR2	None.	None.	None.
PWC_RAM_ERR	RAM memory error on POWERCELL card.	Bad POWERCELL card.	If error persists, replace the POWERCELL card.
PWCEL_AT_NEW_ADR	You attempted to readdress a POWERCELL to a new address that already exists on the POWERCELL network.	Your addressing procedure for the POWERCELLs has created duplicate ad dresses.	Recheck your addressing scheme. If necessary, reset all POWERCELL addresses to the factory default address of 240. Begin addressing the cells again. Use the AutoAddress capability to minimize addressing errors.
PWCEL_BAD_FMT	The format of the data from the remote POWERCELL is invalid.	Most likely, this is a communication error or power supply problem for the re mote POWERCELLs. Bad remote POWERCELL.	If problem persists, validate wiring, line terminations, and power in the POWERCELL network. Replace the remote POWERCELL, if necessary
PWCEL_EEP_ERR	The remote POWERCELL has reported a checksum error in its EEPROM.	Bad remote POWERCELL.	Replace remote POWERCELL.

Error Message	Description	Probable Cause	Remedy
PWCEL_NEG_RNG	The weight reported by a remote POWERCELL is in the negative weight range.	Bad remote POWERCELL.	Replace remote POWERCELL.
PWCEL_NO_DATA	No weight data is being reported by a remote POWERCELL.	Most likely, this is a communication error or power supply problem for the re mote POWERCELLs. It could also be caused by a bad re mote POWERCELL.	If problem persists, validate wiring, line terminations, and power in the POWERCELL network. Replace the remote POWERCELL, if necessary
PWCEL_NO_RESP	The remote POWERCELL is not responding to polls from the JAGXTREME terminal.	Most likely, this is a communication error or power supply problem for the re mote POWERCELLs. It could also be caused by a bad re mote POWERCELL.	If problem persists, validate wiring, line terminations, and power in the POWERCELL network. Replace the remote POWERCELL, if necessary
PWCEL_ROM_ERR PWCEL_RAM_ERR	The remote POWERCELL is reporting an error in its local memory.	Bad remote POWERCELL.	Replace remote POWERCELL.
PWCEL_RESTART	The JAGXTREME terminal has restarted a remote POWERCELL after the POWERCELL has not responded with valid data.	Most likely, this is a communication error or power supply problem for the re mote POWERCELLs. It could also be caused by a bad re mote POWERCELL.	If problem persists, validate wiring, line terminations, and power in the POWERCELL network. Replace the remote POWERCELL, if necessary
Record not found	JagBASIC programming error.	A record specified in GET statement for an indexed sequential file could not be found in the file.	There should be an ON ERROR statement in the JagBASIC program to handle these potential situations.
NETWORK PRINT ERR	There was a network error in attempting to print a demand print, continuous print, or setup report.	This error typically occurs when the demand print or continuous print is directed to a remote JAGXTREME. It occurs when Ethernet network messaging fails.	Check network setup, addresses, wiring, terminations, and connections.
* With any PWCEL ERROR, the weight display will be blank.			
Resource in use	JagBASIC programming error.	The JagBASIC application tried to access a system resource that is already in use by another JAGXTREME task. In particular, a JagBASIC application cannot open a serial port that has been assigned to a serial port connection in setup. Also, when two or more JagBASIC applications are sharing a remote serial port, only one application can have the port open at a time.	Correct JagBASIC application. To share remote serial ports between multiple JagBASIC applications, you will have to develop sharing logic that checks for this specific error code.

Error Message	Description	Probable Cause	Remedy
RETURN no GOSUB	JagBASIC programming error.	RETURN statement is present without required GOSUB.	Correct JagBASIC application.
SCALE_IN_MOTION	Scale in motion. This is a normal occurrence and not necessarily an error.	Motion on the scale during taring or zeroing the scale.	Try mechanical methods to stabilize the scale base first. Then, try changing the filtering to a stiffer setting in set up. Then, try changing the motion stability settings to make it less sensitive.
SCALE_UNDER_ZERO	The scale gross weight has gone more than “n” divisions below the cur rent zero. The default “n” is 5, but it can be adjusted in set up.	The zero value for the scale could have been re set by hitting the zero but ton. There could be a connection problem to the base, particularly, with an analog base.	Take all weight off the scale base and reset the zero value. Zero settings in setup determine the range of how far from the calibrated zero that you can set a new zero value. If your weighing process uses below zero weight values, you can disable the under zero by setting the zero blanking value to 99 divisions. Check the analog base wiring.
SCL_OVERCAPACITY	The weight on the scale exceeds the calibrated capacity of the scale by more than 5 divisions.	There is too much weight on the scale based on calibration parameters.	Reduce the weight on the scale.
SD string > max.	JagBASIC programming error.	JagBASIC can only access Shared Data fields whose length is less than the maximum JagBASIC string size of 80 bytes.	Correct JagBASIC program.
SD_BAD_BUFFER	There was an invalid access to Shared Data.	A Shared Data access re quest provided a buffer that is not long enough.	Make sure that the external agency is providing a large enough buffer to match the requested Shared Data field.
SD_WRITE_DISABLE	There was an invalid access to Shared Data.	An external agency at tempted to access a protected Shared Data field in legal-for-trade mode.	Check external agency program.
SER CONST ERROR	The JAGXTREME could not start or restart a logical serial connection.	JAGXTREME software error.	Power down, then up. If error still occurs, reset the JAGXTREME terminal to factory settings and reprogram setup parameters.
SER_BUFFER_FULL	The JAGXTREME demand print buffer is full.	JAGXTREME software error.	Power down, then up. If error still occurs, reset the JAGXTREME terminal to factory settings and reprogram setup parameters.

Error Message	Description	Probable Cause	Remedy
SER_IN_TIMEOUT	There was a timeout waiting for serial input.	The serial device talking to the terminal has not sent the required input to the terminal. This could also be caused by communication errors.	Verify message exchange between the JAGXTREME terminal and serial de vice.
SER_MSG_SEQ_ERR	There was an error in the sequencing of demand print messages.	Most likely, when one terminal is printing at a remote terminal, a message was lost in the Ethernet communications.	If problem persists, check Ethernet wiring, terminations, and connections.
SERIAL_MSG_ERROR	The Serial Services soft ware modules got an in valid request.	JAGXTREME software error.	Power down, then up. If error still occurs, reset the JAGXTREME terminal to factory settings and reprogram setup parameters.
SETPOINT_NO_RATE	The user has configured a rate setpoint, but has not configured rate calculation.	The user has not configured the rate calculation.	Configure the rate function in the Alternate Weight Units sub-block.
SHIFT_ADJUST_ERROR	The shift adjustment factors could not be calculated.	The weight placements during the shift adjust procedure was incorrect.	Carefully redo the shift adjustment, perhaps, with bigger weights.
SPX_NET_ERROR	SPX returned a network error status.	Most likely, there is a problem with the Ethernet wiring.	Check the network setup, wiring, connections, addressing, and terminations.
SYMMETRY OK	SYMMETRY CHECK OK	Previous symmetry error has now gone back within the established limits,	There may still be a potential POWERCELL hardware problem. You should perform diagnostics checks the individual cells in the symmetry set.
Syntax error	JagBASIC programming error.	The JagBASIC program has a syntax error.	Correct the JagBASIC program.
TARE_ABOVE_LIMIT	Tare value exceeds the allowed limit.	In a legal for trade environment in certain markets, the tare value cannot exceed the highest weight in the lowest range of a multi-range scale.	Check local legal-for-trade requirements.
TARE_NOT_IN_INCR	Keyboard Tare is not entered in a rounded value to the nearest increment.	In certain markets, the keyboard tare value must be entered in as a value rounded to the nearest increment.	Make sure the keyboard tare value is rounded to the nearest increment.
TARE_OVER_CAPCTY	Tare exceeds the capacity of the scale.	The tare value cannot exceed the capacity of the scale.	Make sure the tare value is less than the capacity of the scale.
TARE_TOO_SMALL	Pushbutton tare value is less than one division.	Weight on scale must be at least one division when taking Pushbutton tare.	Make sure scale has at least one division of weight before taking pushbutton tare.

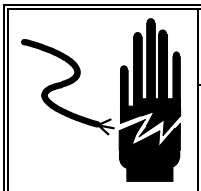
Error Message	Description	Probable Cause	Remedy
TARE_UNDER_ZERO	Attempted to take tare when scale is under zero and has an invalid weight.	Cannot take tare when scale is under zero.	Make sure scale has valid weight before taking tare.
TEMPLATE_ERROR	Template error.	Error detected in template configuration.	Check template configuration. Correct it as necessary. If problem persists, reset template to factory and reenter template.
Too many dimens.	JagBASIC programming error.	JagBASIC arrays can have at most three dimensions.	Correct the JagBASIC program.
TOO_SMALL_INCRMT	Increment size is too small.	The scale increment size is too small so that you are asking for more resolution than the scale base is capable of supporting.	Choose a larger increment size parameter in setup and recalibrate the scale.
Type mismatch	JagBASIC programming error.	JagBASIC statement is using an invalid data type or is relating two in compatible data types.	Correct the JagBASIC program.
Undefined funct.	JagBASIC programming error.	JagBASIC statement referring to an undefined function.	Correct the JagBASIC program.
Value out range	JagBASIC programming error.	The JagBASIC statement is referring to a value out of the range of acceptable values.	Correct the JagBASIC program.
WRONG SCALE MODE	Zeroing scale in net mode.	User attempted to zero the scale in net mode.	Clear tare to put scale in gross mode before zeroing scale.
ZERO_NOT_CAPTURED	Tare attempted before power up zero value was captured.	Tare attempted before power up zero value was captured.	Wait a few seconds after power up before attempting a tare.
SYMMETRY ERR	SYMMETRY DRIFT ERROR	POWERCELL symmetry has drifted beyond the established limits	Check the POWERCELL load cells for the symmetry set indicated in the error message. You should perform diagnostics checks the cells. You may have to replace a bad cell.

Diagnostic Tests

AC Power Test

Using the Volt-Ohm meter, check the AC input power. Input power must be within -15% to +10% of the nominal AC line voltage.

Voltage Test



⚠ WARNING

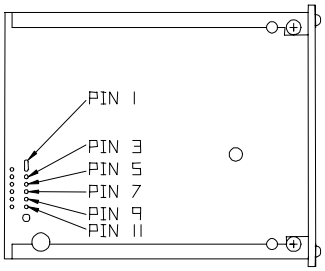
ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

Power Supply Voltage

When testing power supply voltages, remove the power supply from the JAGXTREME enclosure. Extreme caution must be taken since the PCB components will be exposed.

1. Unplug the JAGXTREME terminal from the external power source.
2. Remove the power supply assembly from the enclosure and lay it component side down on a non-conductive surface.
3. Verify that the fuse located on the Power Supply PCB is good before testing any of the voltages. If the fuse is bad, replace it and recheck the power wiring and connections for damage.
4. Locate the 12 solder connections for the connector which plugs into the back panel connector PCB. Refer to Figure 5-a. Use caution not to short adjacent pins.

5. Reapply AC power to the power supply using extreme caution.



Test Points	Voltage Readings
Chassis GND & Pin 1	4.75 to 5.2 VDC
Chassis GND & Pin 3	4.75 to 5.2 VDC
Chassis GND & Pin 5	4.75 to 5.2 VDC
Chassis GND & Pin 7	4.75 to 5.2 VDC
Chassis GND & Pin 9	18 to 22 VDC
Chassis GND & Pin 11	4.75 to 5.2 VDC

Figure 5-a: Power Supply Test Points (viewed from solder side) and Voltage Chart

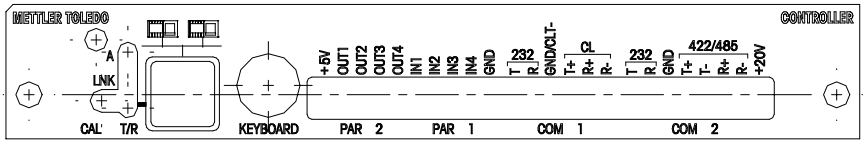
If any of the test point voltages listed are missing or incorrect, verify that the power supply fuse and AC line voltage input are OK. If they are good, replace the Power Supply PCB and retest.

Analog PCB Voltage

The only place to test output from the Analog PCB is at the load cell connection. Verify voltage of 15 VDC between + and - Excitation (DC volts). If the JAGXTREME terminal has power and the Analog PCB has no voltage, replace the PCB.

DigiTOL Output Voltage

Voltages to the DigiTOL scale can be measured at the COM2 connector on the Controller PCB. Refer to Figure 5-b. Disconnect the load cell prior to this test.



Test Points	Voltage Readings
GND & +20V	20 VDC
TXD+	5 VDC
RXD+ (with no load applied)	2.5 VDC
RXD- (with no load applied)	2.5 VDC

Figure 5-b: Controller Panel and Voltage Chart

Discrete Output Voltage

1. With no load applied and the terminal at zero the following voltages should be measured. Refer to the controller panel diagram and the following table.

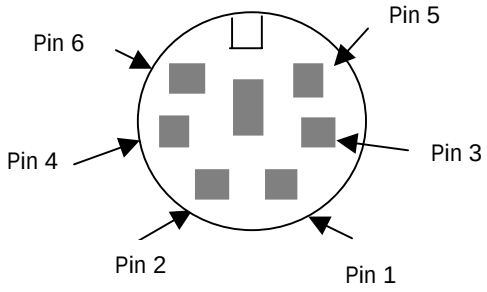
Test Points	Voltage Readings
GND & +5 VDC	5 VDC*
+5 VDC & OUT1	5 VDC*
+5 VDC & OUT2	5 VDC*
+5 VDC & OUT3	5 VDC*
+5 VDC & OUT4	5 VDC*

*If voltages are not within the +4.5 to +5.2 VDC range, check for:

- Correct wiring. Refer to the section entitled Outputs in Appendix 2.
- Correct programming parameter configuration. Refer to the section entitled Configure Discrete Program Block in Chapter 3.
- Correct setpoint weight values. Refer to the section entitled MEMORY Key Operations—Setpoints in Chapter 4.

QWERTY Keyboard Voltage

1. Test the voltages at the keyboard jack on the Controller PCB panel with the keyboard plug removed. Refer to Figure 5-c.



Test Points	Voltage Readings
PIN 1 & PIN 3	5 VDC
PIN 5 & PIN 3	5 VDC
PINS 4 & 3	5 VDC

Figure 5-c: QWERTY Plug Jack and Voltage Chart

2. If the voltages are correct and the keyboard still does not work, try connecting another keyboard.

Backup Battery Test

Disconnect the connector plug from J3 of the power supply PCB and put your voltmeter leads at pin 1 (+ red) and pin 4 (- black). If your reading is between 3.7 volts and 4.2 volts, the battery should be considered operational.

Ground Test

If the ground is insufficient, the JAGXTREME terminal may lock up frequently or give unstable weight readings.

To confirm ground integrity, a commercial branch circuit analyzer is recommended. This instrument uses a high amperage pulse to check ground resistance. It measures the voltage from the neutral wire to the ground connection and will provide an assessment of the line loading. Instructions with the instrument give guidelines about limits that assure good connections. Visual inspections and a query of the user will provide information about equipment sharing the power line.

Using a Volt-Ohm meter to check for excessive voltage between neutral and ground on the AC input is not suitable to confirm power grounding integrity. In some cases, a power line conditioner may help to correct adverse power conditions.

External Equipment Test

1. Disconnect all nonessential external equipment and retest the scale.
2. Reconnect one at a time to isolate a problem with peripheral equipment.
3. If the analog scale option is installed, connect an analog load cell simulator to the I/O port point assigned to this option.
4. Verify that the positive sense is connected to the positive excitation and the negative sense is connected to the negative excitation.

Internal Testing

Access the Diagnostics program block and perform the tests to detect internal problems. See Chapter 3.

- **Memory—**to test memory on the controller board, flash memory, RAM, and the EEPROM.
- **Display—**to test each segment of the upper and lower display areas and the display ROM and RAM.
- **Keyboard—**to test each key of the keypad, and/or an external PC keyboard.
- **Scale—**to test the weighing functions of a scale that is connected or simulate weighing functions in the expanded x 10 display mode.
- **Serial ports—**to test the serial I/O ports, including a loop back test.
- **Parallel ports—**to test the discrete I/O ports.
- **Network—**to test the network connections.

20 mA /RS-232 Printer Tests

When measuring the higher baud rates in the Demand mode, the meter display will fluctuate for a shorter period of time.

20 mA Terminal Output Test

If you suspect the terminal may not be transmitting data to the printer when using 20 mA current loop, follow this test procedure:

1. Remove power from the terminal and the printer and disconnect the data cable from the printer.
2. Connect the red voltmeter lead to the + 20 mA receive pin on the printer end of the cable.
3. Connect the black voltmeter lead to the - 20 mA receive pin on the printer end of the cable. Set the meter to read DC milliamps.
4. Apply power. The meter should read as follows:

- For 300 to 9600 baud in Demand mode, the meter should display a stable reading between 18.0 and 40.0 mA. Any reading below 18.0 mA or above 40.0 mA indicates a malfunction in the sending device.
- For 2400 to 9600 in Continuous mode, the meter should fluctuate continuously between 16 mA and 22 mA. The constant fluctuation on the meter display indicates the scale/indicator is transmitting information. To test the Demand baud rates, press PRINT on the terminal. The display should fluctuate from 1/2 to 3/4 of the initial reading, then become stable again. This indicates the terminal has transmitted data.

RS-232 Terminal Output Test

Use the following procedure to determine if the RS-232 serial port is operational.

1. Remove power from the terminal and the printer and disconnect the data cable from the printer.
2. Set the voltmeter to read 20 volts DC.
3. Connect the red lead to pin 2 of the printer end of the data cable and connect the black lead to pin 7.
4. Apply power. The meter should read as follows:
   - For 300 to 9600 baud in Demand mode, the meter should read between -5 and -15 with no fluctuation.
   - For 2400 to 9600 baud in Continuous mode, the meter should fluctuate between -5 and +5 continuously. The constant fluctuation on the meter display indicates the scale/indicator is transmitting information.

When measuring the higher baud rates in the Demand mode, the meter display will fluctuate for a shorter period of time.

To test the Demand baud rates, press PRINT on the JAGXTREME terminal. The display should fluctuate between -5 volts and +5 volts for the duration of the transmission, then become stable again. This indicates the terminal has transmitted data.

Replacing the Power Supply

Follow the instructions in this section if you should ever need to replace the power supply due to damage from power surges or malfunction.

⚠ CAUTION

DISCONNECTING BOTH THE POWER SUPPLY AND THE BATTERY BACK-UP CAN RESULT IN LOSS OF ALL PROGRAMMING.

The Controller board has a Super Action Cap that supports its RAM for up to 24 hours. It is unlikely that disconnecting the power supply or battery will result in loss of setup data; however, you should have a record of the setup parameters for added security. See the section entitled Diagnostics and Maintenance Program Block in Chapter 3 of this manual for more information on printing the setup parameters.

It may be necessary to loosen the PCB right thumbscrews and gently pry the power supply assembly away from the Panel Mount unit.

To replace the JAGXTREME terminal's power supply unit:

1. Disconnect AC power to the terminal.

2. Disconnect the power cable at the rear of the unit. For General Purpose units, remove the back cover.
3. Using a Phillips head screwdriver, remove the two screws located on the top and bottom of the power supply assembly, freeing it from the power supply housing. General Purpose units have only a top screw.
4. Carefully pull the power supply assembly toward you and slide the assembly from the JAGXTREME enclosure. Disconnect the battery harness from J3.
5. Remove the two screws holding the Power Supply PCB to the power supply back panel assembly.
6. Attach the new PCB to the back panel, then reattach the battery harness to J3 and slide the assembly back into the JAGXTREME terminal.
7. Replace and tighten the power supply retention screws removed in step 3.
8. Reconnect the power cable, replace cover (General Purpose), and reapply power.

WARNING!

IMPROPER INSTALLATION OF THE POWER CABLE WILL RESULT IN APPLYING 120 VAC TO GROUND. THE HOT WIRE MUST BE ON TOP. THE TERMINAL SCREWS SHOULD FACE AWAY FROM THE OPTION CIRCUIT BOARD SLOTS.

Replacing the Battery Back-up

A 4.5 volt alkaline battery (Part Number 145486 00A) is installed as a back-up in case the power to the unit should fail. You should check the battery periodically to ensure it is working properly and change it as necessary. Refer to the Battery Back-up Test section later in this chapter.

JAGXTREME terminals use a standard PC-type battery which is available in most computer service centers.

CAUTION

DISCONNECTING BOTH THE POWER SUPPLY AND THE BATTERY BACK-UP CAN RESULT IN LOSS OF ALL PROGRAMMING.

To replace the battery back-up:

1. Disconnect AC power to the terminal.
2. Disconnect the power cable at the rear of the unit. Remove the back cover for General Purpose units.
3. Using a Phillips head screwdriver, remove the two screws located on the top and bottom of the power supply assembly, freeing it from the power supply housing. General Purpose units have only a top screw.
4. Carefully pull the power supply assembly toward you and slide the assembly from the JAGXTREME terminal's enclosure. Disconnect the battery harness from J3.

CAUTION

BATTERY MAY EXPLODE OR LEAK IF INSERTED IMPROPERLY, RECHARGED, OR DISPOSED OF IN FIRE. DISPOSE OF BATTERY PROPERLY.

5. Remove the old battery and install the new battery ensuring that pin 1 on J3 is on the (+) side (red wire) of the battery. Connect the battery harness to J3 on the power supply and slide it back into the JAGXTREME terminal.
6. Replace and tighten the power supply retention screws removed in step 3.
7. Reconnect the power cable, replace the cover if working with a general purpose unit, and reapply power.

WARNING!

IMPROPER INSTALLATION OF THE POWER CABLE WILL RESULT IN APPLYING 120 VAC TO GROUND. THE HOT WIRE MUST BE ON TOP. THE TERMINAL SCREWS SHOULD FACE AWAY FROM THE OPTION CIRCUIT BOARD SLOTS.

8 Parts and Accessories

Refer to the following diagrams and data tables when ordering parts and accessories for the JAGXTREME terminal.

Panel Mount Parts

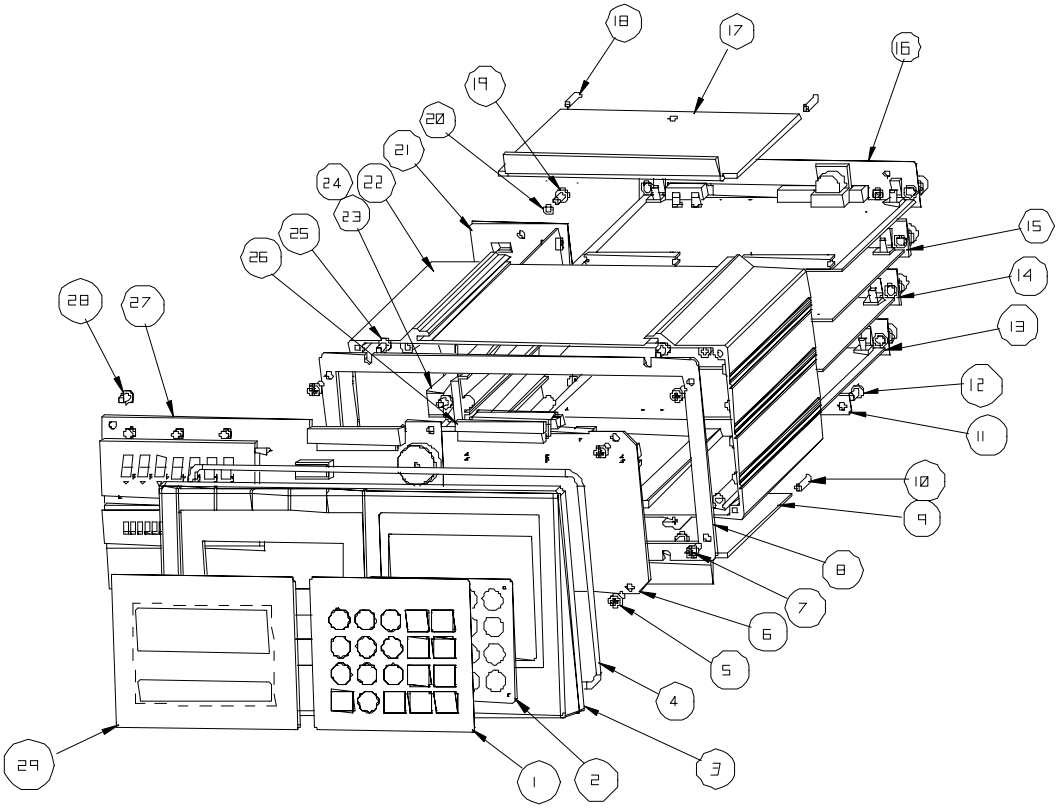


Figure 6-a: Panel Mount Model Parts

Parts List—Panel Mount			
Ref #	**Part Number**	**Description**	**Qty**
1 and 2	(*)14538600A	Keyboard Assembly	1
3	(*)14162800A	Front Panel	1
4	(*)14016100A	Seal, Panel O-Ring	1
5	R0511100A	Screw, M4 x 10 Taptite	4
6	(*)14146200A	Connector (mother) PCB	1
7	R051100A	Screw, M4 x 10 Taptite	4
8	(*)14014100A	Plate, Interface	1
9	(*)14015200A	Clamp Bracket	1
10	R0511300A	Screw, Set M4 x 20	2
11	(*)14015800A	Rear Cover Plate, Bottom	1
12	R0511100A	Screw, M4 10 Taptite	4
13	Slot 3 Refer to the Optional Panels Table**		1
14	Slot 2 Refer to the Optional Panels Table**		1
15	Slot 1 Refer to the Optional Panels Table**		1
16	(*)15740100A	Controller PCB Assembly	1
17	(*)14015200A	Bracket Clamp	1
18	R0511300A	Screw, Set M4 x 20	2
19	R0511100A	Screw, M4 x 10 Taptite	3
20	R00589130	Lock washer, #8 Int. Tooth	2
21	(*)14163600A	Power Supply Assembly	1
22	(*)14546400A	Indicator Chassis	1
23	(*)14901700A	Capacity Label	1
24	(*)14548600A	Battery 4.5 Volt	1
25	R0511100A	Screw, M4 x 10 Taptite	4
26	(*)14015900A	Harness	1
27	(*)14091800A	Display PCB	1
28	R0511100A	Screw, M4 x 10 Taptite	4
29	(*)14015300A	Display Lens	1

(*) May have a revision level prefix.
** Table is located near the end of this chapter.
*** Refer to the section entitled Controller PCB in this chapter for part numbers and details.

General Purpose Parts (Front View)

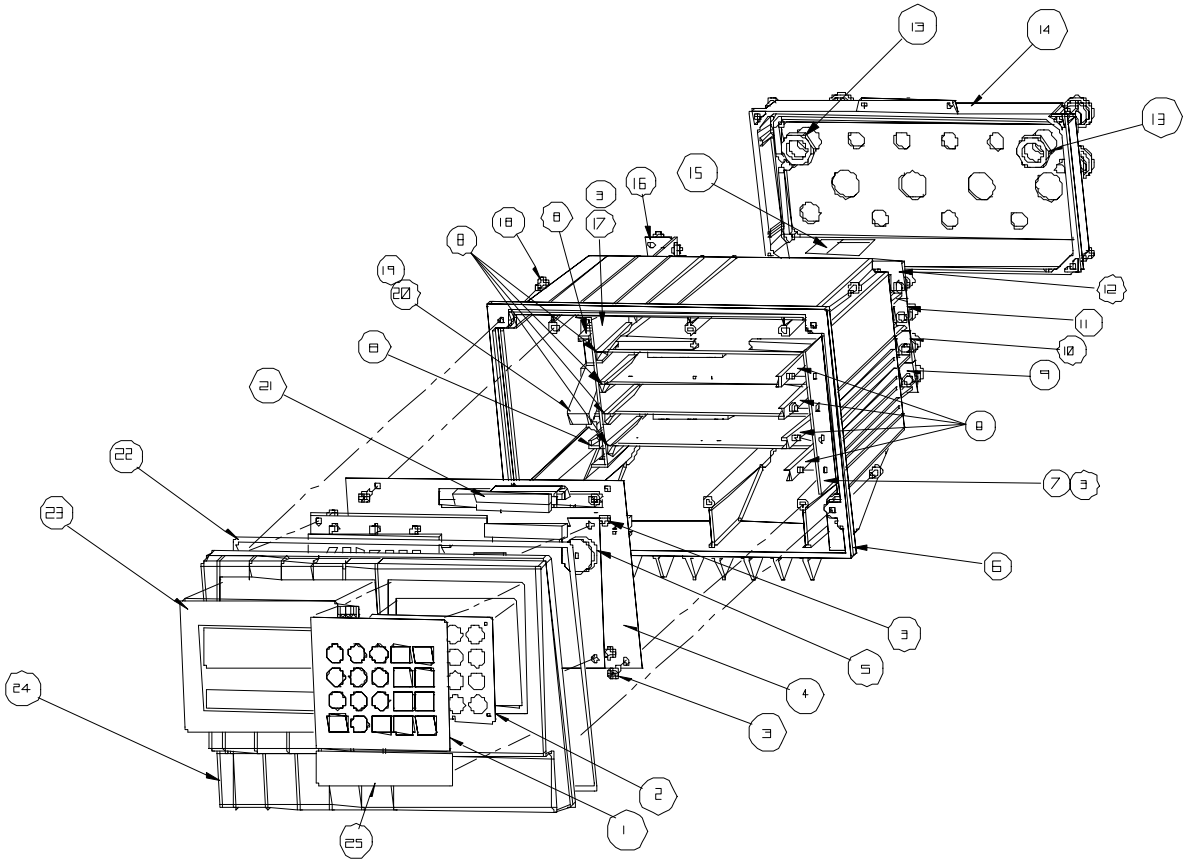


Figure 6-b: General Purpose Model Parts (Front)

Parts List—General Purpose (Front View)			
Ref #	**Part Number**	**Description**	**Qty**
1 and 2	(*)14538600A	Keyboard Assembly	1
3	R0511100A	Screw, M4 x 10 Taptite	14
4	(*)14411000A	Connector (mother) PCB Assembly	1
5	(*)14091800A	VF Display PCB Assembly	1
6	(*)14398800A	Enclosure Assembly, Wall/Desk	1
7	(*)14546800A	Bracket, PCB Guide, Right	1
8	(*)14399400A	Card Guide, 2.5"	2
9	Slot 3 - Refer to the Optional Panels Table**		
10	Slot 2 - Refer to the Optional Panels Table**		
11	Slot 1 - Refer to the Optional Panels Table**		
12	(*)15740100A	Controller Assembly	1
13	(*)14400300A	Hex Nut, PG9, Nylon	2
14	(*)14398700A	Rear Access Cover	1
16	(*)14399600A	Power Supply Assembly	1
17	(*)14546900A	Bracket, PCB Guide, Left	1
18	R0516900A	Seal Screw, M4 x 10 PHD	4
19	(*)14724100A	Hex Nut, Pg11, Nylon	1
20	(*)14548600A	Battery, 4.5 Volt	1
21	(*)14015900A	Harness, VF Display	1
22	(*)14399800A	O-Ring, Sponge	1
23	(*)14015300A	Display Lens, VF	1
24	(*)14398600A	Front Panel, Alpha-numeric	1
25	(*)14901700A	Capacity Label	1

(*) May have a revision level prefix.

** Table is located near the end of this chapter.

*** Refer to the section entitled Controller PCB in this chapter for part numbers and details.

General Purpose Parts (Rear View)

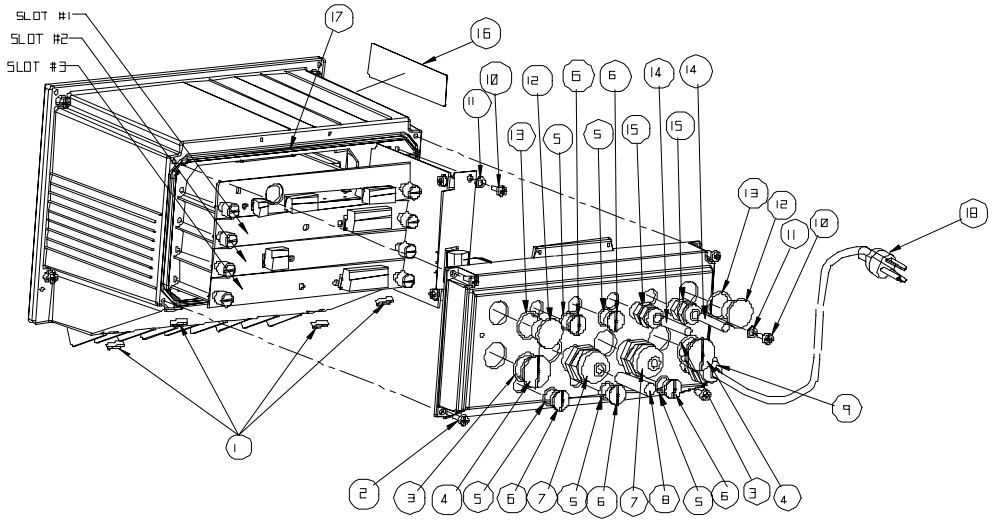


Figure 6-c: General Purpose Model Parts (Rear)

Parts List—General Purpose (Rear View)			
Ref #	**Part Number**	**Description**	**Qty**
1	(*)10839700A	Foot, Stick On	4
2	R0511100A	Screw, M4 10 Taptite	4
4	(*)14400100A	Hole Plug, PG13.5	2
6	(*)14399900A	Hole Plug PG7	5
7	(*)12903900A	Connector, Cord, w/lock nut	2
8	(*)14467600A	Hole Plug .24/.38 diameter	3
10	R0541500A	Screw, M4 x 10 w/lw	2
11	R00589 130	Lock washer, #8 Int. Tooth	1
12	(*)14400200A	Hole Plug, 18 mm ID	2
15	(*)12901800A	Connector, Cord w/lock nut	2
16	(*)14800000A	Label, Data, Blank (no available for re-order)	1
17	(*)14399700A	O-Ring, sponge, 7.5 ID	1
18	Line Cord	Refer to the Line Cord Assemblies Table	1
19	(*)14801800A	Shield, Data Label	1
20	(*)14636400A	Connector, Terminal Block, Plug 3 Pos.	1
21	(*)11397100A	Label, FCC	1

(*) May have a revision level prefix.

Harsh Environment Parts

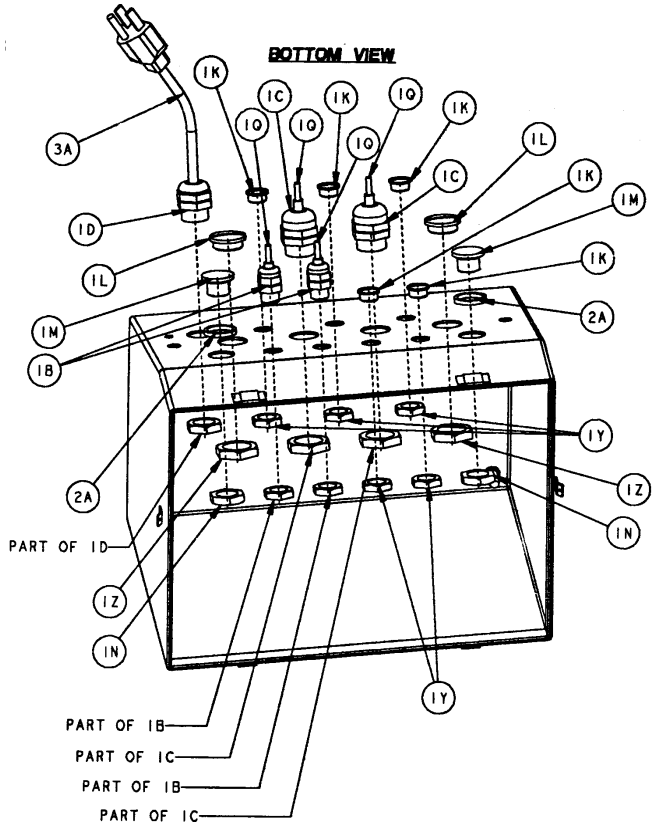


Figure 6-d: Harsh Environment Parts (Bottom View)

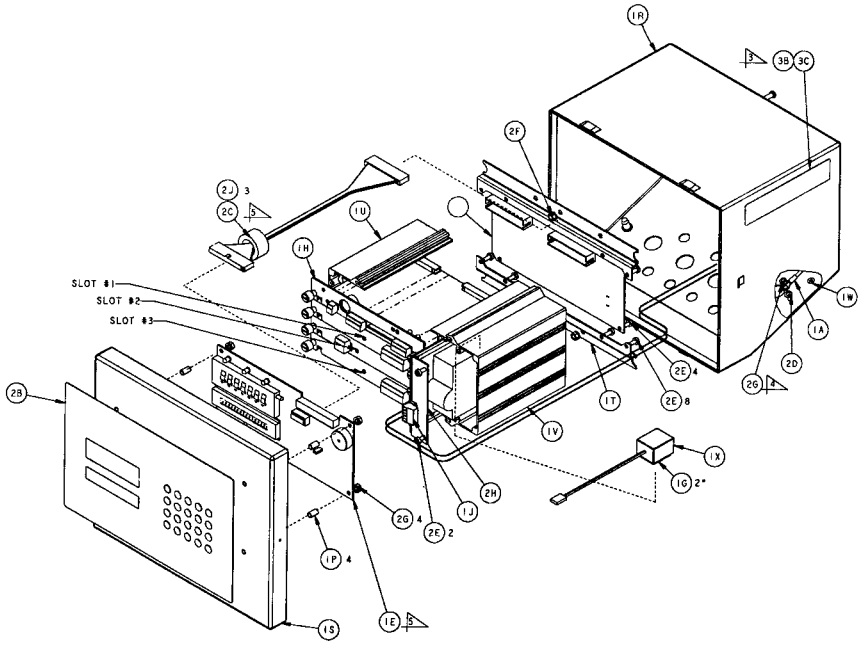


Figure 6-e: Harsh Environment Parts (Top/Front View)

Parts List—Harsh Environment			
Ref #	Part Number	Description	Qty
1B	(*)12901800A	Conn. Cord w/ Lock nut (0.118-0.255)	2
1C	(*)12903900A	Conn. Cord w/ Lock nut (0.240-0.470)	2
1E	(*)14091800A	PCB Assembly, VF Display	1
1F	(*)14146200A	PCB Assembly, Connector	1
1H	(*)15740100A	Controller PCB	1
1J	(*)14636400A	Conn. Term. Plug	1
1K	(*)14399900A	Hole Plug (PG7)	5
1L	(*)14400100A	Hole Plug (PG13.5)	2
1M	(*)14400200A	Hole Plug, 18 mm	2
1N	(*)14400300A	Hex Nut, PG9	2
1P	(*)14465900A	Spacer, RD, M4	4
1Q	(*)14467600A	Hole Plug (.24/.38 Diameter)	4
1R	(*)14519800A	Enclosure Assembly (Bottom)	1
1S	(*)14519900A	Enclosure Assembly (Top)	1
1T	(*)14520200A	Bracket, Mounting	2
1U	(*)14520600A	Card Guide (Left)	1
1V	(*)14528600A	Card Guide (Right)	1
1W	(*)14531400A	Label, Ground BSI	1
1X	(*)14548600A	Battery, Alkaline, 4.5 V	1
1Y	(*)14577900A	Hex Nut, PG7	5
1Z	(*)14578000A	Hex Nut PG 13.5	2
2A	(*)14578300A	Gasket, Grip	2
2B	(*)14579900A	Assembly Keyboard/SW (JTHx)	1
2C	(*)14636500A	Harness, Display	1
2D	R00589130	Washer #8 I.T. Lock	1
2E	R0511100A	Screw, Pan HD M4x10, PH, Taptite	14
2F	R0519200A	Nut, Hex KEPS, M5	3
2G	R0519600A	Nut, Hex KEPS M4	5
2H	(*)14130400A	Power Supply	1
2J	(*)09827100A	Cable Tie	2
3A	Line Cord	Refer to Line Cord Assemblies Table	
3B	(*)148000000A	Label, Data, Blank (no available for re-order)	1
3C	(*)14801800A	Shield, Data Label	2
3D	(*)``397100A	FCC Label	1
3E	(*)14724100A	Nut, PG11	1
Slot 1	Slot 1	Refer to Optional Panels Table	1
Slot 2	Slot 2	Refer to Optional Panels Table	1
Slot 3	Slot 3	Refer to Optional Panels Table	1
Not Shown	(*)14520400A	Wall Mounting Bracket	2
Not Shown	R0520600A	Wall Mounting Hardware (SS “Hex Head” screw M6 8)	4

(*) May have revision level prefix.

Line Cord Assemblies

Line Cord Assemblies - General Purpose			
Part Number	**Destination Description**	**Market Number**	**Qty**
(*)14962000A	Line Cord - North America	Various	1
(*) 14962100A	Line Cord - United Kingdom	003, 041, 046,053, 096	1
(*) 14962400A	Line Cord - Italy	022	1
(*) 15428400A	Line Cord - Switzerland	005, 007	1
(*) 14962200A	Line Cord - Cont. Europe	Various	1
(*) 14962300A	Line Cord - Australia	009, 010, 023, 057	1
(*)15428200A	Line Cord – Denmark	002	1
(*)15399300A	Line Cord – South Africa	073	1

Line Cord Assemblies – Harsh Environment			
Part Number	**Destination Description**	**Market Number**	**Qty**
(*)15003100A	Line Cord - North America	Various	1
(*) 15003300A	Line Cord - United Kingdom	003, 046,053, 071	1
(*)15003500AA	Line Cord - Italy	022	1
(*) 15432100A	Line Cord - Switzerland	005, 007	1
(*) 15003200AA	Line Cord - Cont. Europe	Various	1
(*) 15003400AA	Line Cord - Australia	009, 010, 023, 057	1
(*)15431900A	Line Cord – Denmark	002	1

Controller PCB

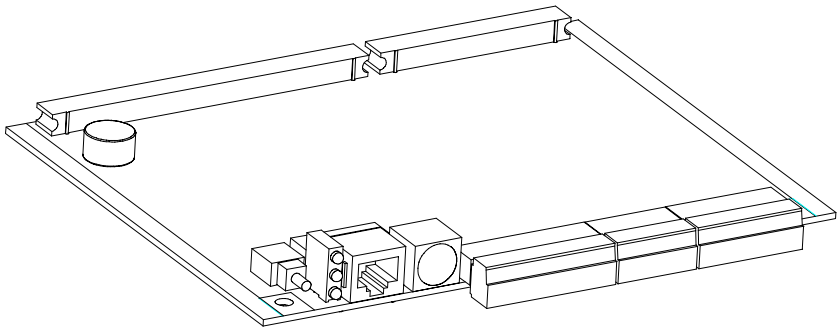


Figure 6-f: Controller PCB Assembly

Parts List—Controller PCB			
Ref #	**Part Number**	**Description**	**Qty**
1	(*)15905900A	JAGXTREME Controller PCB, Latest Revision Operating Software (w/o parts Ref #2-6)	1
2	(*)14113300A	Connector, 8 Position Terminal Block	1
3	(*)14113100A	Connector, 6 Position Terminal Block	1
4	(*)14113400A	Connector, 10 Position Terminal Block	1
5	(*) 15740200A	I/O Plate Assembly, Controller	1
6	R0511100A	Screw, M4 x 10 Taptite	2
**1	(*)15740100A	JAGXTREME Controller PCB (w/ parts Ref #2-6)	1

(*) May have a revision level prefix.

* If a Controller PCB (w/o parts Ref #2-6) is needed with a different version of software, order 14849200A and specify the desired software version. A surcharge will be added for the software change.

** If a Controller PCB (w/ parts Ref #2-6) is needed with a different version of software, order 14849400A and specify the desired software version. A surcharge will be added for the software change.

Analog Load Cell PCB

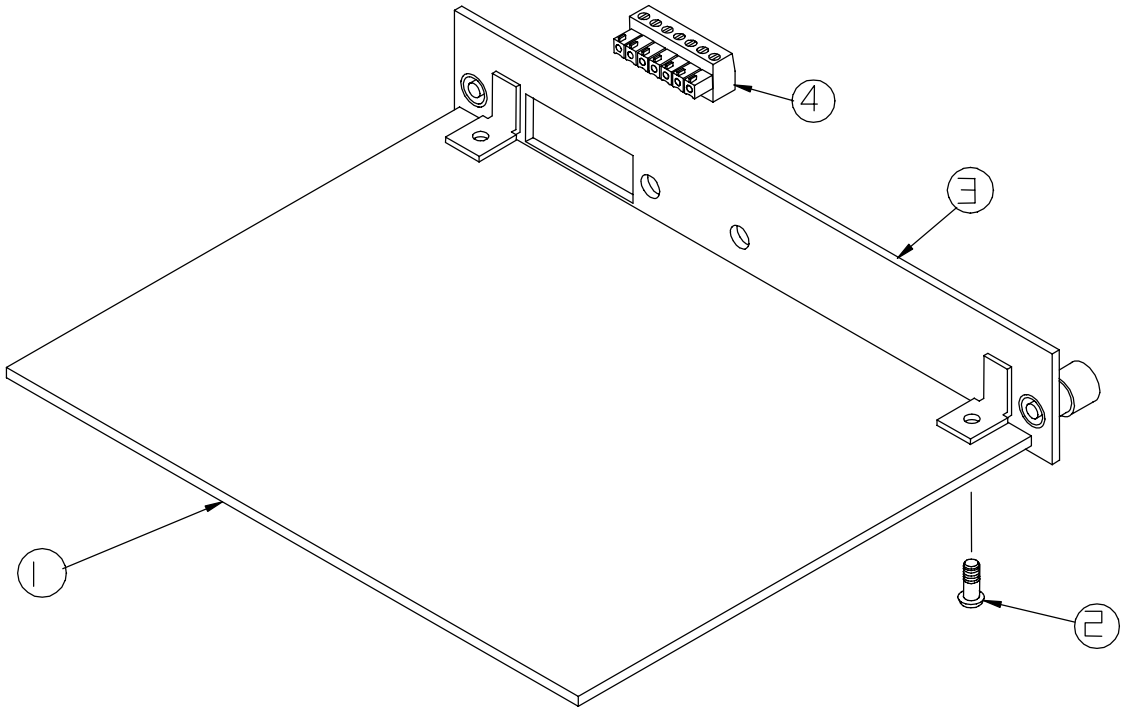


Figure 6-g: Analog Load Cell PCB Assembly

Parts List—Analog Load Cell PCB			
Ref #	**Part Number**	**Description**	**Qty**
1	(*)15345400A (*)15360200A	PCB Assembly, Single Analog, JAGXTREME (w/o Ref # 2-7) PCB Assembly, Reduced Excitation Analog L/C JAGXTREME (w/o Ref # 2-7)	1
2	R0511100A	Screw, M4 x 10 Taptite	2
3	(*)15359000A (*)15360800A	I/O Plate Assembly, Analog I/O Plate Assembly, Reduced Excitation Analog	1
4	(*)11924100A	Connector, 7 Position Terminal Block	1
**	(*)14163300A (*)14490200A	Panel Assembly, Analog L/C, JAGXTREME Panel Assembly, Reduced Excitation L/C, Analog JAGXTREME	1

(*) May have a revision level prefix.
** Includes all parts listed as a complete assembly.

Dual Analog Load Cell PCB

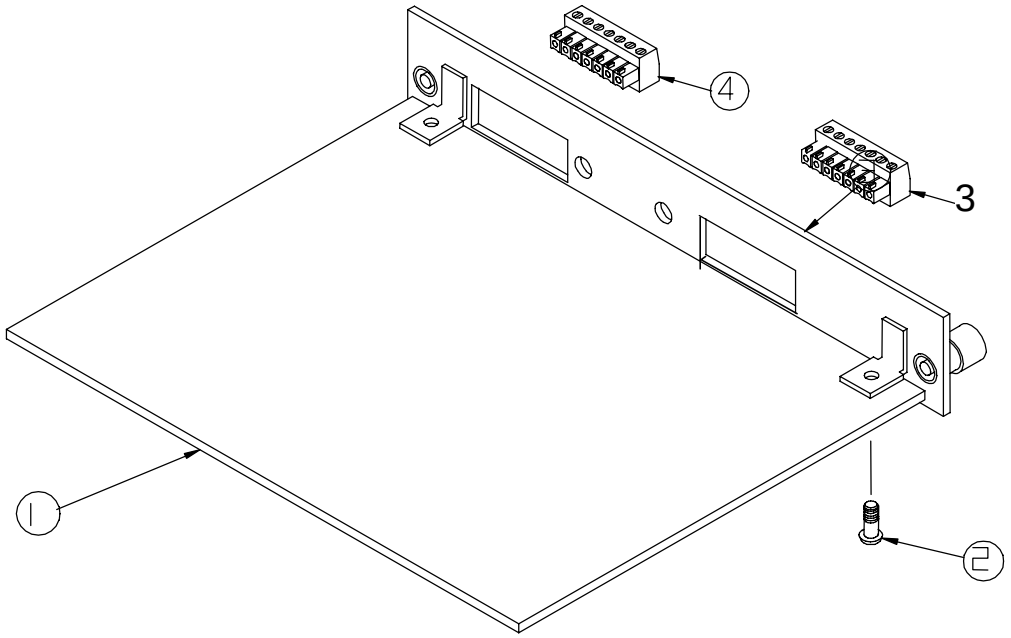


Figure 6-h: Dual Analog Load Cell PCB Assembly

Parts List—Analog Load Cell PCB			
Ref #	**Part Number**	**Description**	**Qty**
1	(*)15290700A (*)15360100A	PCB Assembly, Dual Analog Load Cell, JAGXTREME (w/o Ref # 2-7) PCB Assembly, Reduced Excitation Dual Analog PCB (w/o Ref # 2-7)	1
2	R0511100A	Screw, M4 x 10 Taptite	2
3	(*)14517500A (*)15360700A	I/O Plate Assembly, Analog L/C I/O Plate Assembly, Reduced Excitation Analog L/C	1
4	(*)11924100A	Connector, 7 Position Terminal Block	2
**	(*)14517700A (*)15360300A	I/O Assembly, Dual Analog PCB Assembly, Non-hazardous I/O Assembly, Dual Analog PCB Assembly, Reduced Excitation	1

(*) May have a revision level prefix.

** Includes all parts listed as a complete assembly.

Power Supply

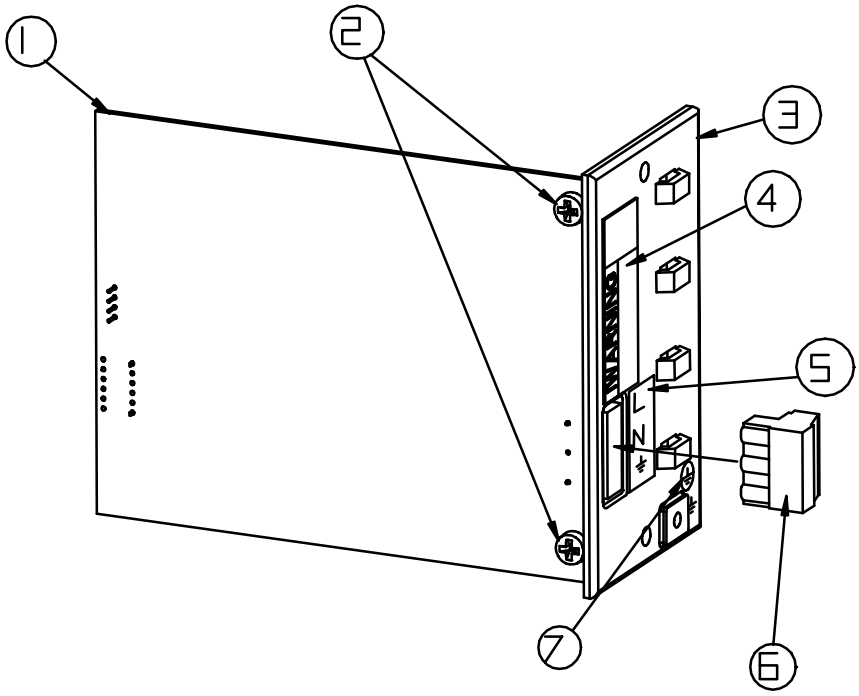


Figure 6-i: Power Supply Assembly

Parts List—Power Supply			
Ref #	**Part Number**	**Description**	**Qty**
1	(*)14200200A	Power Supply PCB	1
2	R0511100A	Screw, M4 x 10 Taptite	2
3	(*)14015100A (*)14520300A (*)14399500A	Panel Assembly, Power Supply (Panel Mount) Bracket, Power Supply (Harsh Environment) Panel, Power Supply (Desk/Wall)	1 1
4	(*)12699700A	Label, Warning – Power	1
5	(*)14400500A	Label, AC Power In	1
6	(*)14636400A	Connector, 3 Position Terminal Block	1
7	(*)145531400A	Label, Ground, BSI	1
*	(*)14163600A	Power Supply PCB Assembly, Panel/Blind	1
*	(*)14399600A	Power Supply PCB Assembly, Desk/Wall	1
*	(*)14130400A	Power Supply PCB Assembly, Harsh	1

(*) May have revision level prefix.
* Includes all parts listed above as an assembly.

Allen-Bradley RIO Option

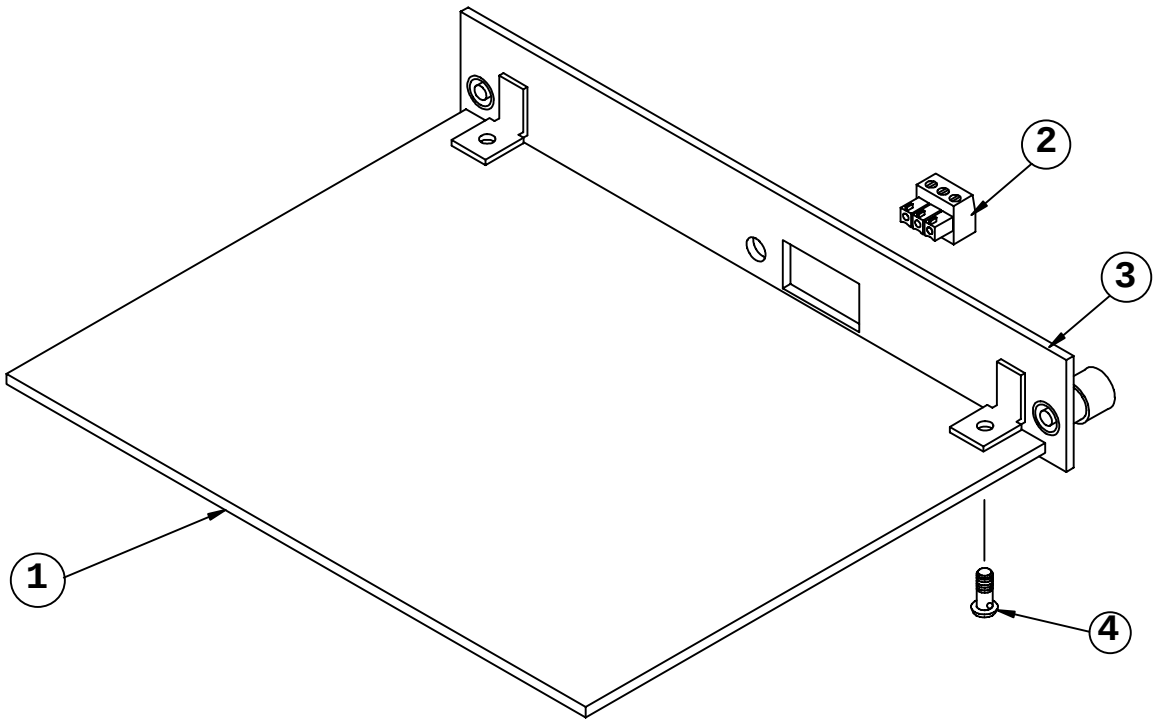


Figure 6-j: Allen-Bradley RIO Assembly

Ref #	Part Number	Description	Qty
1	(*)14093400A	Allen Bradley I/O PCB	1
2	(*)14217400A	Connector, 3 Position Terminal Block	1
3	(*)14162400A	Plate Assembly, Allen Bradley I/O	1
4	R0511100A	Screw, M4 x 10 Taptite	2
*	(*)14163400A	Allen Bradley I/O PCB Assembly	1

(*) May have a revision level prefix.
* Includes all parts listed above as an assembly.

PROFIBUS Option

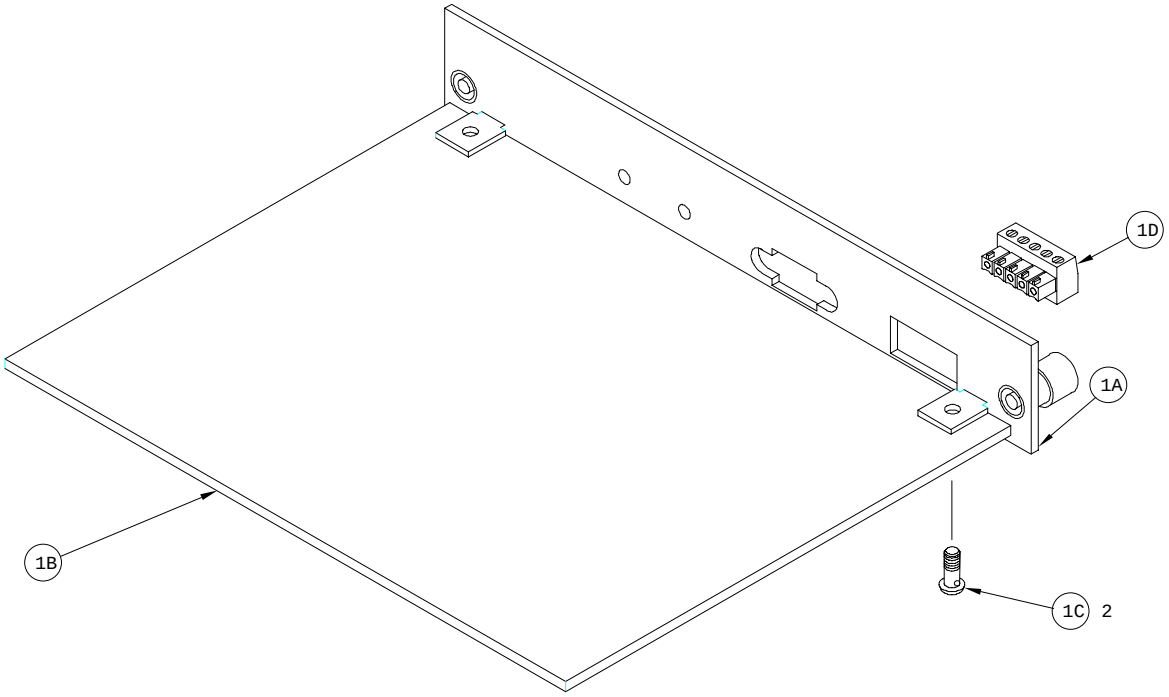


Figure 6-k PROFIBUS I/F Assembly

Ref #	Part Number	Description	Qty
1A	(*)14517000A	I/O Plate	1
1B	(*)14688900A	PCB, PROFIBUS (w/o Hardware)	1
1C	R0511100A	Screw, M4 x 10 Taptite	2
1D	(*)14374900A	Connector, 5-Position Terminal Block**	0
*	(*)14517100A	PROFIBUS PCB/Panel Assembly	1

(*) May have a revision level prefix.
* Includes all parts listed above as an assembly.
**Supplied with 0900-0311 PROFIBUS Pigtail Cable only.

MODBUS Plus PCB

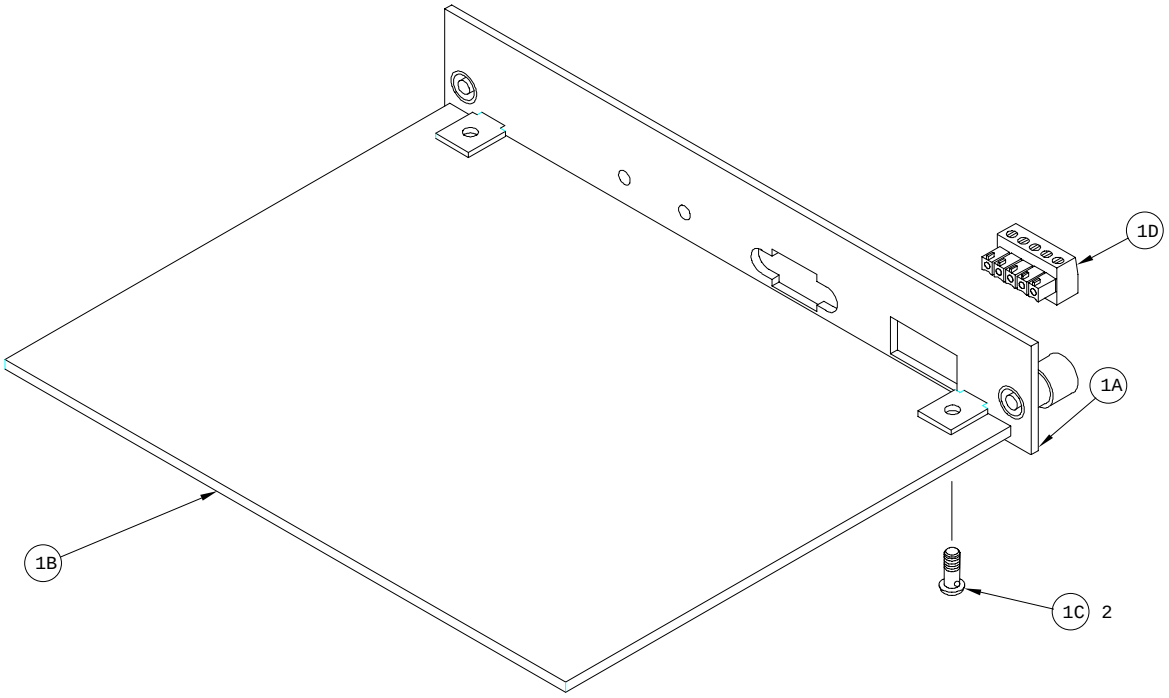


Figure 6-I: MODBUS Plus PCB Assembly

Ref #	Part Number	Description	Qty
1A	(*)145478000A	I/O Plate	1
1B	(*)15084900A	PCB, Modbus Plus (w/o Hardware)	1
1C	R0511100A	Screw, M4 x 10 Taptite	2
1D	(*)14113000A	Connector, 4-Position Terminal Block**	0
*	(*)14547700A	MODBUS Plus PCB/Panel Assembly	1

*Includes all parts listed above as an assembly.

**Supplied with 0900-0320-00A MODBUS PLUS cable.

Dual Analog Output Option

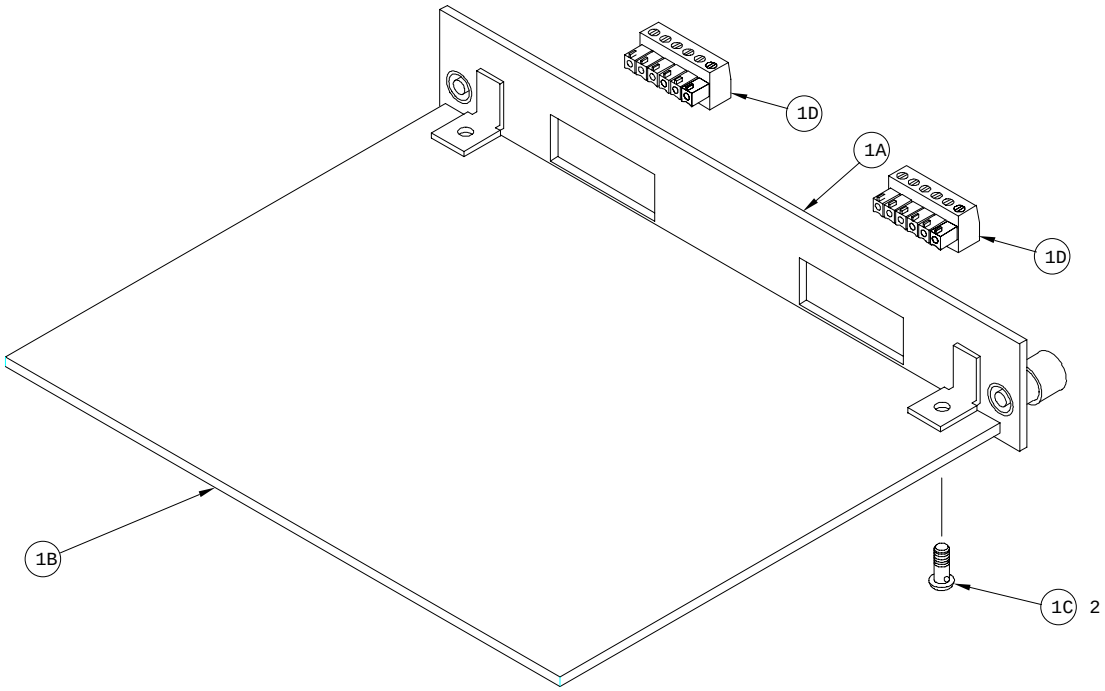


Figure 6-m: Dual Analog Output Assembly

Ref #	Part Number	Description	Qty
1A	(*)14547400A	I/O Plate, Dual Analog Output	1
1B	(*)14095000A	PCB, Dual Analog Output (w/o Hardware)	1
1C	R0511100A	Screw, M4 x 10 Taptite	2
1D	(*)13162500A	Connector, 6-Position Terminal Block	1
*	(*)14164100A	Dual Analog Output PCB/Panel Assembly	1

(*) May have a revision level prefix.
* Includes all parts listed above as an assembly.

POWERCELL PCB

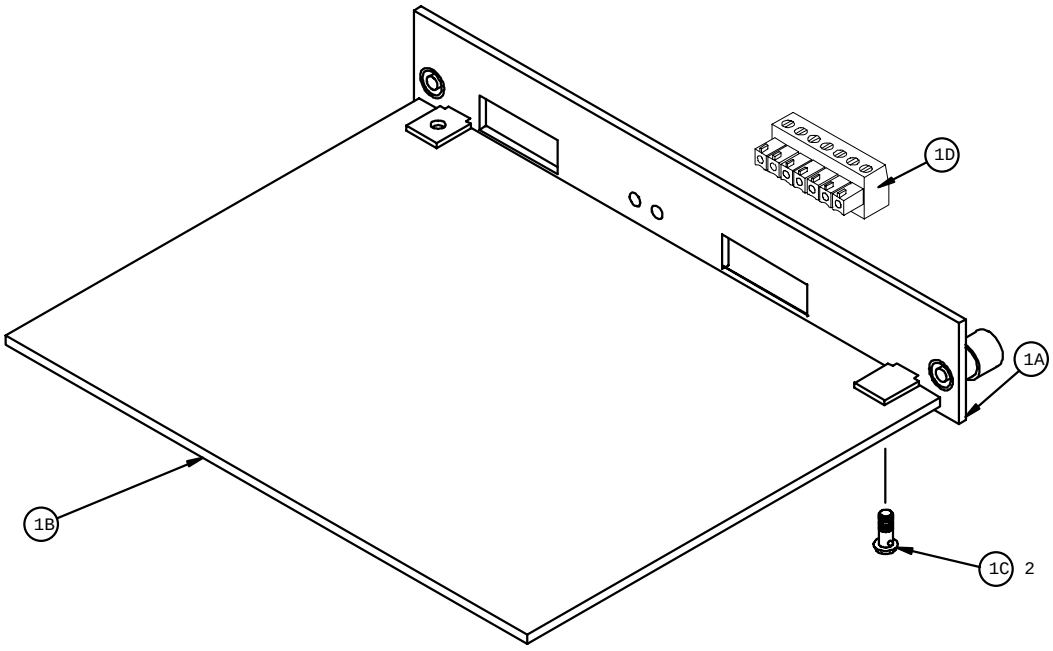


Figure 6-n: POWERCELL PCB

Ref #	Part Number	Description	Qty
1A	(*)14546100A	POWERCELL Assembly I/O Plate	1
1B	(*)14092600A	POWERCELL PCB Assembly	1
1C	R0511100A	Screw, M4 x 10, ST PHD	2
1D	(*)14113300A	Connector, 8 Pos. Terminal Block	1
Not Shown	0917-0240 14749600A	External Power Supply (for applications with more than 14 cells per POWERCELL PCB)	1
*	(*)14546200A	POWERCELL PCB Assembly	1

(*) May have a revision level prefix.

* Includes all parts listed above as an assembly.

Multifunction PCB

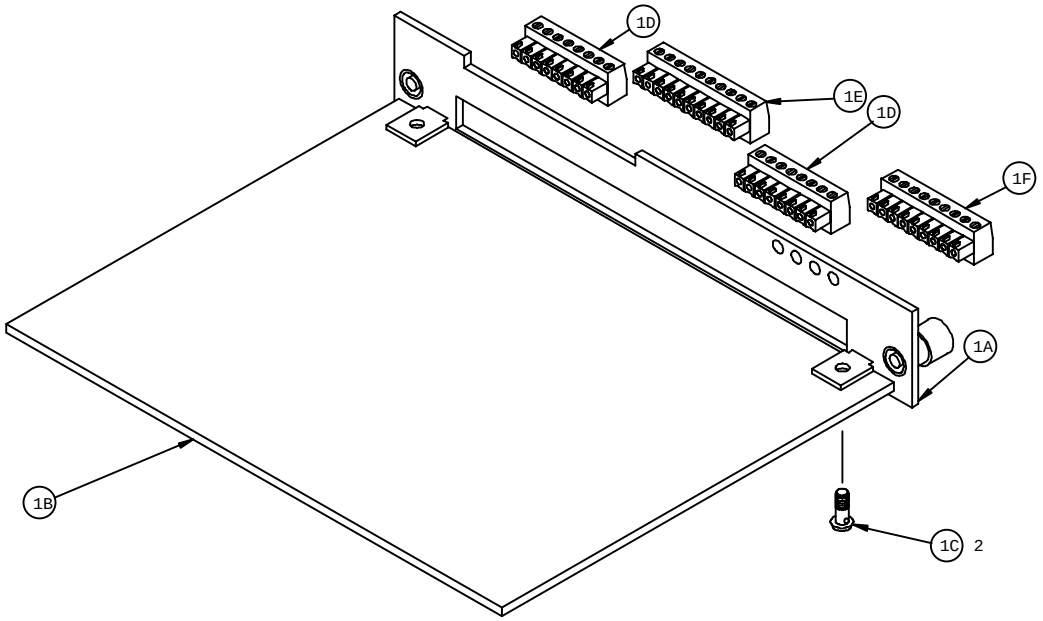


Figure 6-o: Multifunction PCB

Ref #	Part Number	Description	Qty
1A	(*)14164900A	Multifunction I/O Plate	1
1B	(*)14094200A	Multifunction PCB Assembly	1
1C	R0511100A	Screw, M4 x 10 Taptite	2
1D	(*)14113300A	Connector, 8 Pos. Terminal Block	2
1E	(*)14113400A	Connector, 10 Pos. Terminal Block	1
1F	(*)14405300A	Connector, 9 Pos. Terminal Block	1
*	(*)14164000A	Multifunction PCB Assembly	1

(*) May have a revision level prefix.

* Includes all parts listed above as an assembly.

High Precision (IDNET) PCB

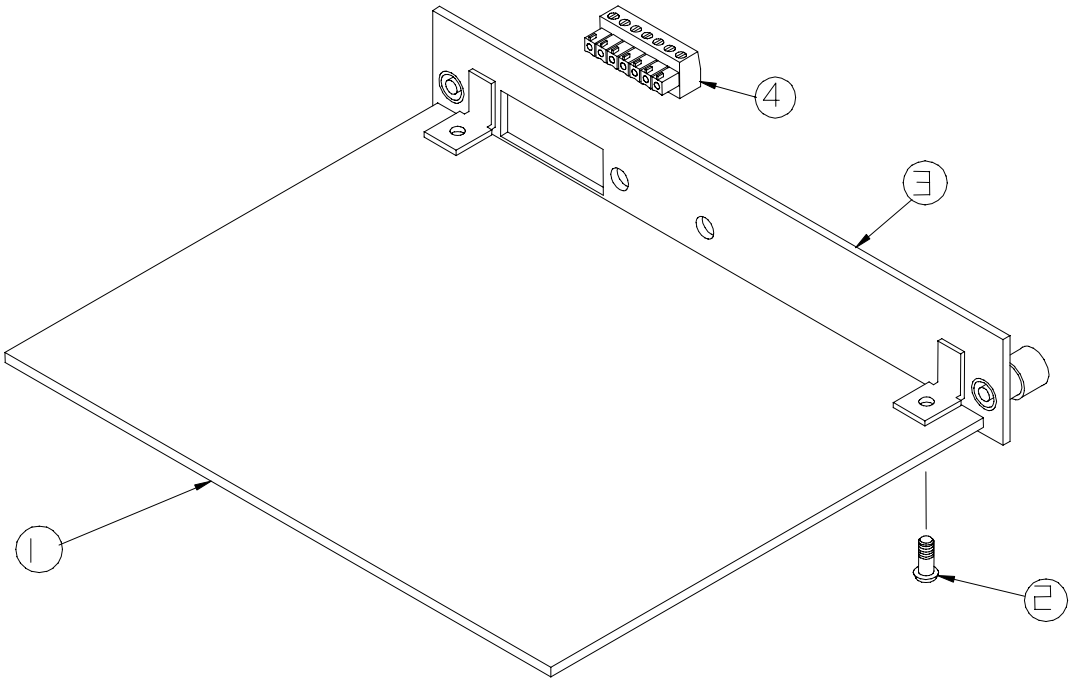


Figure 6-p: High Precision (IDNET) PCB Assembly

Parts List—High Precision (IDNET) PCB			
Ref #	Part Number	Description	Qty
1	(*)14714800A	High Precision I/F PCB	1
2	R0511100A	Screw, M4 x 10 Taptite	2
3	(*)14547300A	I/O Plate Assembly, High Precision	1
4	(*)14113200A	Connector, 7 Position Terminal Block	1
*	(*)14547500A	High Precision (IDNET) PCB Assembly	1

(*) May have a revision level prefix.

* Includes all parts listed as a complete assembly.

Optional Accessories

Optional Accessories		
Part Number	**Description**	**Factory Number**
(*)14607000A	Analog Load Cell Board Program and Instructions	0901-0392
(*)14526100A	Wall/Column Bracket - GP Model	0917-0209
(*)14528400A	Blank Plate For Open Slot	0917-0210
(*)14512800A	Analog Load Cell Kit	0917-0211
(*)14534600A	Reduced Excitation Analog Load Cell Kit	0917-0212
(*)14510000A	Allen-Bradley Remote I/O Kit	0917-0213
(*)14528500A	Kit To Convert Blind Unit To JTPA	0917-0214
(*)10086500A	Analog Load Cell Simulator (10-step)	0917-0091
(*)13446000A	DigiTOL Load Cell Simulator	0917-0178
082451 JAG	Analog Load Cell Simulator (variable)	---
(*)14476100A	METTLER TOLEDO Screw Driver	---
(*)14411800A	2mm Allen Wrench For JTPA Models	---
(*)90093600A	RS-232/20 mA Converter	0964-0065
(*)14690100A	Multifunction Kit	0917-0223
(*)14690200A	POWERCELL Kit	0917-0224
(*)14875800A	Dual Channel Analog Output Kit	0917-0242
(*)14866600A	PROFIBUS Interface Kit	0917-0243
(*)14866500A	High Precision (IDNET) Kit	0917-0244
(*)13823300A	High Precision Cable Adapter	0900-0284
(*)15567500A	External Power Supply Waterproof	0917-0240
(*)15648700A	QWERTY Keyboard	0917-0274
(*)14839500A	JagBASIC Programmer's Kit	0917-0230
(*)14863100A	PROFIBUS Pigtail Kit	0900-0311
(*)15158600A	Modbus Plus Pigtail Kit	0900-0320
(*)15035500A	PROFIBUS Type File	0917-0250
(*)13406300A	NMOS POWERCELL Aux Power Supply 100/110/120 VAC	0917-0168
(*)13406400A	NMOS POWERCELL Aux Power Supply 220/240 VAC	0917-0169
(*)15151300A	Modbus Plus Kit	0917-0254

Optional Panels

Optional Panels		
Slot Number	**Part Number**	**Description**
Slot 1	(*)14163100A	Blank Panel Assembly
	(*)14163300A	Analog Load Cell PCB Panel Assembly
	(*)14490200A	Reduced Excitation Analog PCB Panel Assembly
	(*)14546200A	POWERCELL PCB Panel Assembly
	(*)14517700A	Dual Analog Load Cell PCB Assembly
	(*)15360300A	Reduced Excitation Dual Analog Load Cell PCB Panel Assembly
	(*)14164000A	Multifunction PCB Panel Assembly
	(*)14547500A	High Precision PCB Panel Assembly
Slot 2	(*)14163100A	Blank Panel Assembly
	(*)14163300A	Analog PCB Panel Assembly
	(*)14490200A	Reduced Excitation Analog PCB Panel Assembly
	(*)15360300A	Reduced Excitation Dual Analog Load Cell PCB Assembly
	(*)14163400A	Allen Bradley I/O Panel Assembly
	(*)14164000A	Multifunction PCB Panel Assembly
	(*)14547500A	High Precision PCB Panel Assembly
Slot 3	(*)14163100A	Blank Panel Assembly
	(*)14163400A	Allen Bradley I/O PCB Panel Assembly
	(*)14164100A	Multifunction PCB Panel Assembly
	(*)14547700A	MODBUS PLUS PCB Panel Assembly
	(*)14164100A	Dual Analog Out PCB Panel Assembly
	(*)14517100A	Profibus PCB Panel Assembly

(*) May have a revision level prefix.

Recommended Spare Parts

Recommended Spare Parts		
Part Number	**Description**	**Qty**
(*)15905900A	Controller PCB	1
(*)14200200A	Power Supply PCB	1
(*)15345400A	Analog Load Cell PCB (if used)	1
(*)14485300A	Reduced Excitation Analog PCB (if used)	1
(*)15290700A	Dual Analog PCB (if used)	1
(*)15360100A	Reduced Excitation Dual Analog PCB (if used)	1
(*)14092600A	POWERCELL PCB (if used)	1
*(*)14094200A	Multifunction PCB (if used)	1
(*)14538600A	Keyboard Assembly	1
*(*)14548600A	4.5 Volt Battery	1
(*)14016100A	Front Seal, Panel O-Ring	1

(*) May have a revision level prefix.

* For specific part numbers and details on each PCB, refer to the section in this chapter describing the specific PCB.

** For part numbers for the different enclosure types, refer to the enclosure assemblies in the front of this chapter.

9 Appendices

Appendix 1: Serial Interface Reference

Two serial ports are standard on the JAGXTREME industrial terminal Controller PCB. They are designated COM1 and COM2.

- COM1 provides both RS-232 and 20 mA current loop interfaces. Both types of interfaces can be output simultaneously; however, only one input can be connected.
- COM2 provides either RS-232, RS-422 or RS-485 interfaces. Both RS-232 and RS-422 can be output simultaneously; however, only one input can be connected. If RS-485 is selected for COM2, it is the only type of interface that can be used. COM2 is also used for DigiTOL scale interface. If a DigiTOL scale is connected to COM2, that port cannot be used for any other purpose.

Two additional serial ports (COM3 and COM4) are available on optional Multifunction PCB. COM3 has the same functionality as COM1 but COM 3 does not have 20mA; COM4 has the same functionality as COM2.

Character framing is programmable in the setup mode. Framing can be:

1 start bit
7 or 8 ASCII data bits (selectable)
0 or 1 parity bit (even, odd, or none)
1 stop bit

You can also configure the baud rate (from 300 to 115.2k baud) and checksum character interface parameters.

The JAGXTREME terminal uses software handshaking to control data flow commonly referred to as XON/XOFF handshaking. When a receiving device (typically a printer) is getting information from a JAGXTREME terminal and cannot receive any more in its buffer, it sends an ASCII XOFF (13h) telling the JAGXTREME terminal to temporarily stop sending data until its buffer clears.

When the device can receive more data, it sends an ASCII XON (11h) telling the JAGXTREME terminal to begin sending data again. This process can occur as often as required by receiving device.

The XON/XOFF method is the only type of handshaking supported by the JAGXTREME terminal at this time.

Hardware Connections

All connections to the serial ports on the JAGXTREME terminal are made using terminal strips. The terminal strips are removable for ease of connection or replacement of the PCB.

The general purpose enclosure has grip bushings on the rear cover to properly secure and seal around the serial cable. The panel mount enclosure has loops on the rear of the power supply assembly allowing you to secure cables with nylon wire ties.

The standard 15-foot (4.572 m) RS-232 printer cable available for the JAGXTREME terminal (Factory Number 0900-0258, part number 133218 00A) is wired as shown below:

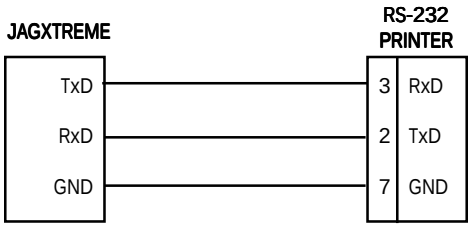


Figure A1-1: RS-232 Printer Cable Wiring

A custom cable can also be used. METTLER TOLEDO recommends using either 20 or 22 gauge wire size. The maximum cable length is determined by the interface type used. As a rule, the following limitations apply:

Cable	Maximum Length	
RS-232	50 feet	15.24 m
20 mA	1000 feet	304.8 m
RS-422	2000 feet	609.6 m
RS-485	2000 feet	609.6 m

Connections other than RS-232 are shown in the section entitled Serial Port Connections in Chapter 2. A custom cable to a computer (or other RS-232 device) should be configured as shown below:

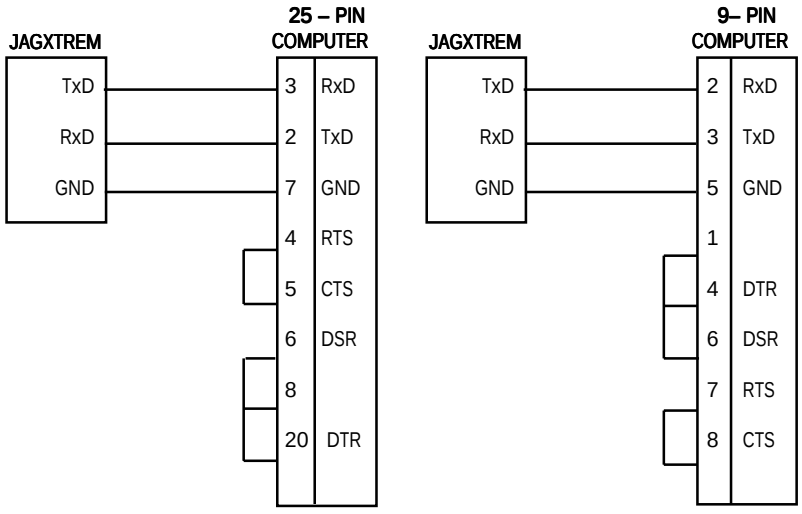


Figure A1-2: Custom Cable Configuration

Output Modes and Formats

The JAGXTREME terminal supports two different modes of data output—demand or continuous.

The demand mode transmits data only if the **ENTER** key is pressed, an auto-print command is received from the optional Allen-Bradley interface, or if discrete input IN3 is grounded. When triggered, data is transmitted in a string selected in the template editing portion of setup. If no templates are selected, a single line output of gross, tare, and net weight will be sent to the demand port. Demand mode is used typically when sending data to a printer.

Continuous mode transmits a predetermined 18-byte string of data from the serial port five or more times a second (without any request). This mode is used typically when continuous monitoring of the scale weight is required by an external device. Typically, continuous output is used to drive a remote display, scoreboard or PC interface.

If **4 Setpnt** status is selected in the Serial Interface program block, setpoints one through four will be included in the continuous output format. The first setpoint assigned to a scale becomes the first setpoint in the continuous output. For example, if the JAGXTREME terminal's setpoints 5 through 8 are assigned to scale A, then setpoints 5 through 8 are mapped to continuous setpoint bits 1 through 4.

The continuous output format is the same for standard mode and 4-setpoint status mode. This format is shown below:

STX	SW A	SW B	SW C	X	X	X	X	X	X	X	X	X	X	X	X	CR	CKS
1	2 STATUS BYTES			3 GROSS / NET WEIGHT						4 TARE WEIGHT						5	6

Table Notes

1. <STX> ASCII Start of Text Character, Hex 02.
2. <SWA>, <SWB>, <SWC> Status Word Bytes A, B, and C. Refer to the Bit Identification Tables for individual bit definition.
3. Displayed weight, either Gross or Net weight. Six digits, no decimal point or sign. Non-significant leading zeros are replaced with spaces.
4. Tare weight. Six digits, no decimal point or sign.`
5. <CR> ASCII Carriage Return, Hex 0d.
6. <CKS> Checksum character, 2's complement of the 7 low order bits of the binary sum of all characters on a line preceding the checksum, including the STX and CR.

Standard Status Bytes A, B, and C

The mode of operation for the status bytes A, B, and C (standard or 4-setpoint) is determined when the continuous connection is made in the Configure Serial program block.

The following tables detail the standard status bytes for continuous output.

Bit Identification Table for Status Byte A			
Bits 0, 1, and 2			
0	**1**	**2**	**Decimal Point Location**
0	0	0	XXXX00
1	0	0	XXXXX0
0	1	0	XXXXXX
1	1	0	XXXXX.X
0	0	1	XXXX.XX
1	0	1	XXX.XXX
0	1	1	XX.XXXX
1	1	1	X.XXXXX
Bits 3 and 4			
3	**4**		**Build Code**
1	0		X1
0	1		X2
1	1		X5
Bit 5			Always = 1
Bit 6			Always = 0

Bit Identification Table for Status Byte B	
Status Bits	**Function**
Bit 0	Gross = 0, Net = 1
Bit 1	Sign, Positive = 0, Negative = 1
Bit 2	Out of Range = 1 (Over capacity or Under Zero)
Bit 3	Motion = 1
Bit 4	lb = 0, kg = 1 (see also Status Byte C, bits 0-2)
Bit 5	Always = 1
Bit 6	In Power Up = 1

Bit Identification Table for Status Byte C			
Bits 0, 1, and 2			
0	**1**	**2**	**Weight Description**
0	0	0	lb or kg, selected by Status Byte B, bit 4
1	0	0	Grams (g)
Bit 3			Print Request = 1
Bit 4			Expand Data x 10 = 1
Bit 5			Always = 1
Bit 6			Always = 0

4-Setpoint Status Bytes A, B, and C

The mode of operation for the status bytes A, B, and C (standard or 4-setpoint) is determined when the continuous connection is made in the configure Serial program block.

The following tables detail the 4-setpoint status bytes for continuous output.

Bit Identification Table for Status Byte A			
Bits 0, 1, and 2			
0	**1**	**2**	**Decimal Point Location**
0	0	0	XXXX00
1	0	0	XXXXX0
0	1	0	XXXXXX
1	1	0	XXXXX.X
0	0	1	XXXX.XX
1	0	1	XXX.XXX
0	1	1	XX.XXXX
1	1	1	X.XXXXX
Bit 3	Setpoint 1 (1st assigned to this scale), Feeding = 0		
Bit 4	Setpoint 2 (2nd assigned to this scale), Feeding = 0		
Bit 5	Always = 1		
Bit 6	Setpoint 3 (3rd assigned to this scale), Feeding = 0		

Bit Identification Table for Status Byte B	
Status Bits	**Function**
Bit 0	Gross = 0, Net = 1
Bit 1	Sign, Positive = 0, Negative = 1
Bit 2	Out of Range = 1 (Over capacity or Under Zero)
Bit 3	Motion = 1
Bit 4	lb = 0, kg = 1 (see also Status Byte C, bits 0-2)
Bit 5	Always = 1
Bit 6	In Power Up = 1

Bit Identification Table for Status Byte C			
Bits 0, 1, and 2			
0	**1**	**2**	**Weight Description**
0	0	0	lb or kg, selected by Status Byte B, bit 4
1	0	0	Grams (g)
Bit 3			Print Request = 1
Bit 4			Setpoint 4 (4th assigned to this scale), Feeding = 0
Bit 5			Always = 1
Bit 6			Always = 0

Multi Cont 1

This continuous output is used with multi-scale scoreboards. The string consists of separate messages for every enabled scale and the sum of the structure for each scale's message is shown below:

ADR	SW A	SW B	SW C	X	X	X	X	X	X	X	X	X	X	X	X	CR	CKS
1	2 STATUS BYTES			3 GROSS / NET WEIGHT						4 TARE WEIGHT						5	6

Table Notes

1. ASCII Character in hex that represents the scale address 01=scale A, 02=scale B, 03=scale C, 04=scale D, 05=scale E (sum)
2. <SWA>, <SWB>, <SWC> Status Word Bytes A, B, and C. Refer to the Standard Bit Identification Tables for individual bit definition.
3. Displayed weight, either Gross or Net weight. Six digits, no decimal point or sign. Non significant leading zeros are replaced with spaces.
4. Tare weight. Six digits, no decimal point or sign.`
5. <CR> ASCII Carriage Return, Hex 0d.
6. <CKS> Checksum character, 2's complement of the 7 low order bits of the binary sum of all characters on a line preceding the checksum, including the STX and CR.

Multi Cont 2

This continuous output is used with multi-scale scoreboards. The string consists of separate messages for every enabled scale and the sum of the structure for each scale's message is shown below:

STX	SW A	SW B	SW C	X	X	X	X	X	X	X	X	X	X	X	X	CR	CKS
1	2 STATUS BYTES			3 GROSS / NET WEIGHT						4 TARE WEIGHT						5	6

Table Notes

1. <STX> ASCII Start of Text Character, Hex 02.
2. <SWA>, <SWB>, <SWC> Status Word Bytes A, B, and C. Refer to the Bit Identification Tables for individual bit definition.
3. Displayed weight, either Gross or Net weight. Six digits, no decimal point or sign. Non-significant leading zeros are replaced with spaces.
4. Tare weight. Six digits, no decimal point or sign.`
5. <CR> ASCII Carriage Return, Hex 0d.
6. <CKS> Checksum character, 2's complement of the 7 low order bits of the binary sum of all characters on a line preceding the checksum, including the STX and CR.

The following tables detail the standard status bytes for continuous output.

Bit Identification Table for Status Byte A			
Bits 0, 1, and 2			
0	**1**	**2**	**Decimal Point Location**
0	0	0	XXXX00
1	0	0	XXXXX0
0	1	0	XXXXXX
1	1	0	XXXXX.X
0	0	1	XXXX.XX
1	0	1	XXX.XXX
0	1	1	XX.XXXX
1	1	1	X.XXXXX
Bits 3 and 4			
3	**4**		**Build Code**
1	0		X1
0	1		X2
1	1		X5
Bit 5			Always = 1
Bit 6			Always = 0

Bit Identification Table for Status Byte B	
Status Bits	**Function**
Bit 0	Gross=0, Net=1
Bit 1	Sign, Positive=0, Negative=1
Bit 2	Out of Range =1 (Over capacity or under zero)
Bit 3	Motion=1
Bit 4	Lb=0, kg=1 (see also Status Byte C, bits 0-2)
Bit 5	Always=1
Bit 6	In Power Up=1

Bit Identification Table for Status Byte C			
Bits 0- 2			**Weight Description**
0	**1**	**2**	
1	0	0	Scale A
0	1	0	Scale B
1	1	0	Scale C
0	0	1	Scale D
1	0	1	Scale E (Sum)
Bit 3			Print Request=1
Bit 4			Expand Data x 10=1
Bit 5			Always=1
Bit 6			Always=0

Default Template Formats

Default templates 1 through 4 contain weight data from Scale A only. Template 5 contains weight data from Scale B only. **Do not select template 5 unless you have a scale B or unless you have cleared template 5 and created your own format using an existing scale.**

Template 1

Gross Weight: XX.XX lb
Tare Weight: XX.XX lb
Net Weight: XX.XX lb

Template 2

Current Date Current Time Scale ID

Gross Weight: XX.XX lb
Tare Weight: XX.XX lb
Net Weight: XX.XX lb

Template 3

Current Date Current Time Scale ID CN

Literal #1
Literal #2

Gross Weight: XX.XX lb
Tare Weight: XX.XX lb
Net Weight: XX.XX lb

Template 4

Current Date Current Time Scale ID CN
Literal #1
Literal #2
Literal #3

Prompt #1 Response #1
Prompt #2 Response #2
Prompt #3 Response #3
Prompt #4 Response #4

Gross Weight: XX.XX lb
Tare Weight: XX.XX lb
Net Weight: XX.XX lb

Template 5

Template 5 is the same as Template 3 except Template 5 contains weight data from summing scale.

Current Date Current Time Scale ID CN
Literal #1
Literal #2

Gross Weight: XX.XX lb
Tare Weight: XX.XX lb
Net Weight: XX.XX lb

You can use the JAGXTREME terminal and weight data in templates. Refer to the Serial Interface section of Chapter 3.

The JAGXTREME terminal's templates are limited to 400 characters. The total number of characters used by each template can be calculated using the following chart:

Print Field	Space Used
JAGXTREME Data Field	7 characters
ASCII Character	1 character
Special ASCII Character	1 character
Justify a Field	2 characters + justify letter (L, R, C) + space limit (1, 2, or 3 characters)
CR/LF Characters	6 characters + quantity (1 or 2)
Repeat Character	5 characters

Consider the following example where a customer ticket has three centered literals in a 40 character-wide field, and an asterisk underline. You can calculate how much of the template remains for field data as follows:

MAXINE'S SHIPPING SERVICES

BOXES ● PACK ● SHIP ● FAX

GREAT PRICES

****

The space required for this ticket heading information is

Character Description	Character Total
Literal 1	7 (JAGXTREME data field)
Centered (Justify in 40 character field)	2 + 1 (letter C) + 2 (two digits for quantity 40)
CR/LF	6 + 1 (one digit for quantity 1)
Total space required (each line)	19
Total for all three lines (19 x 3)	57
ASCII (*)	1 (ASCII character)
Repeat (*) 40 times	5 (repeat function)
CR/LF	6 + 1 (one digit for quantity 1)
Total space for line of asterisks	13
Grand total of characters (57 + 13)	70
Therefore 330 characters remain in this template (400-70)	

The following hints apply to template space calculation:

- Regardless of the number of characters in a JAGXTREME terminal's data field, a template uses only seven characters (the field code).
- Use the CR then the LF special ASCII characters (two characters) instead of the CR/LF combination (7 to 8 characters).
- Justification uses four to six characters that are not used if the field remains unjustified.

Input Modes

This section gives additional information pertaining to the CTPZSU, Bar Code, and Keyboard input modes supported by the JAGXTREME terminal.

CTPZSU In Remote ASCII Control Character Input

The Serial Interface program block gives you the option of configuring a CTPZSU In serial connection that allows the JAGXTREME terminal to perform several basic functions when a control character is received. Remote ASCII control characters and the JAGXTREME terminal's responses include:

ASCII control characters can be sent in upper or lower case.

Characters other than those listed at right are ignored.

If a scale designation character (A or B) is used, it must be followed by the command character(s) within three seconds or the command will be discarded.

C—clears the scale to gross

T—tares the scale

P—initiates a print command

Z—zeros the scale

S—selects a scale

U1—selects primary units

U2—selects secondary units

The ASCII control character pertains to the scale currently selected unless a scale designation character is included in the ASCII control command. You can specify a scale to receive the control character by preceding the command character(s) with the designation A, B, C, D or E.

For example, to take a Pushbutton tare on scale A regardless of which scale is selected, send the command AT. Alternately, the command BT takes a Pushbutton tare on scale B regardless of the selected scale.

You can enter Keyboard Tare by preceding the "T" with a numeric value. For example, 10.5T enters a tare value of 10.5 on the currently selected scale. For two scales, enter Keyboard Tare using the designation A, B, or E before the tare value. For example, A2000T enters a tare of 2000 on Scale A. If there is no preceding numeric value, "T" causes a Pushbutton Tare.

Bar Code In

The JAGXTREME terminal supports serial data input from bar code readers if the serial type connection is configured as Serial or Both in the Configure Port Sub-block (described in Chapter 3 of this manual).

The bar code reader must be a type that sends decoded bar code data as ASCII, and RS-232 data as an output string. Most bar code readers are of this type.

Power to the bar code reader can be supplied by the reader vendor as an auxiliary power supply, or power can be supplied by the JAGXTREME terminal through the PAR 2 connector on the controller board (5 VDC, 115 mA maximum current).

Keyboard In

The JAGXTREME terminal also supports serial input that emulates keyboard input. The serial characters are received and acted upon exactly as if using a keyboard. The JAGXTREME terminal's operating mode is therefore important because it can affect how the input is read. For example, the "Enter" serial character received in normal operating mode has a different result than if that same character is received when the JAGXTREME terminal is in setup mode.

The following serial characters are received:

Serial Character	JAGXTREME Key Emulated
0-9	Numeric Keys
A-Z, ?, $, #, %, –, /, =, *, (,)	Alpha Keys
Ctrl + A*	FUNCTION
Ctrl + B*	ESCAPE
Ctrl + C*	MEMORY
Ctrl + D*	TARE
Ctrl + E*	SELECT
Ctrl + F*	CLEAR
Ctrl + G*	ZERO
Ctrl + H*	ENTER
Other printable characters	May be input to prompts that accept alpha-numeric input
Non-printable characters	Not used

* Press and hold the Control (Ctrl) key as you press the desired function letter key.

TDC3000 Protocol

The JAGXTREME terminal also supports TDC3000 connections as described below.

- **TDC3000 Communications Specifications—**The JAGXTREME terminal supports up to two TDC3000 connections (one for each scale). Using the Serial Setup menus, the operator may connect each scale to a specific serial port that supports the TDC3000 protocol.
- **Physical Channel—**The serial channel is an EIA RS 232 C, point-to-point connection, using the Transmit, Receive, and Ground pins. The baud rate is 9600 bits per second. The character format is 7 data bits + even parity. There is no flow control.
- **Setpoint Operation—**The terminal supports two setpoints for each TDC3000 connection, a coincidence weight setpoint and a rate alarm setpoint. The TDC3000 Host loads the values of these setpoints using the "S" and "A" commands. The Host must also send the "M" command to indicate whether the coincidence weight setpoint is in "filling" or "discharging" mode. In the JAGXTREME terminal, setpoints 1 and 2 are the coincidence and alarm setpoints for Scale A; and setpoints 3 and 4 are the coincidence and alarm setpoints for Scale B.

  The terminal does not activate the coincidence setpoint until it receives the "B" command. The TDC3000 Host may frequently send setpoint "S" commands to change the value of the coincidence weight. In filling mode, while the terminal weight is less than the current coincidence weight, the terminal turns on the "feed output". Once the terminal weight is greater or equal to the current coincidence weight, the terminal turns off the "feed output" and "latches" it. That is, the terminal will only turn on the "feed output" again when the terminal receives another "B"

command from the host. The terminal turns on the "alarm setpoint output" when the flow rate exceeds the alarm setpoint rate.

- **Single-Character Host Commands**
  Format: X (1 character message)

where X =	W-Send Weight Command
	R-Send Flow Rate Command
	B-Begin Feeding Command
	D-Send Decimal Point Location Command

When the terminal receives the "W" command, the terminal responds back with the Weight Message defined later.

When the terminal receives the "R" command, the terminal responds back with the Flow Rate Message defined later.

When the terminal receives the "B" command, the terminal turns on the setpoints, restarts the rate calculation, and sends an <ACK>.

When the terminal receives the "D" command, the terminal responds with a message containing the number of digits to the right of the decimal point in weight messages plus one. The format of the message is:

<D> <NUMBER OF DIGITS + 1> <BCC>

When the terminal does not recognize the Host message, it does not respond.

- **Host Setpoint Download Messages**
  Format: XmmmmmmC (8 character message)

where X =	S-Setpoint Download Command
	A-Alarm Rate Download Command
mmmmmm =	Setpoint or Alarm Value (i.e. 051253 for 5,125.3 lbs.)
C=	Block Check Character

When the terminal receives the "S" or "A" command, the terminal loads the new coincidence weight setpoint or alarm rate setpoint value, respectively, and responds with an <ACK>. The setpoint and alarm values have an implied decimal point that the terminal specifies when it responds to the "D" command. For example, if there is one digit to the right of the decimal point is specified in the "D" message, the "S" message value of "051253" becomes 5125.3 pounds.

If the terminal does not receive or recognize an entire message, the terminal will send a <NAK> after 0.1 seconds of no activity on the receive line.

- **Host Filter Selection Command**
  Format: XmC (3 character message)

where X=	F-Filter Message Command
m=	Filter Selection (0 to 4)
C=	Block Check Character

Upon receiving this, the terminal takes no action but responds with an ACK.

- **Host Setpoint Mode Selection**
  Format: XmC (3 character message)

where X=	M-Mode Message Command
m=	A-Ascending or Filling Cutoff Mode
	D-Descending or Discharging Cutoff Mode
C=	Block Check Character

When the terminal receives the "M" command, the terminal sets the mode of the setpoint and responds with an <ACK>.

If the terminal does not receive or recognize an entire message, the terminal will send a <NAK> after 0.1 seconds of no activity on the receive line.

- **Terminal Weight and Flow Rate Messages**
  Format: XmmmmmmfC (9 character message)

where X=	W-Gross Weight Value Message
	R-Flow Rate Value Message
mmmmmm=	Weight or Flow Value (i.e. 051253 for 5,125.3 lbs.)
	UUUUUU if weight is under zero
	HHHHHH if weight is over capacity
f=	A-if the alarm setpoint is on.
	F-Setpoint Output On (Feeding)
	X-Setpoint Output Off
C=	Block Check Character

When the terminal receives the "W" or "R" command, the terminal responds back with the appropriate message. There is no decimal point in the message, but its position is specified in the terminal's response to the "D" command.

The host system uses the block check to determine if it received the message correctly; however, it does not send an <ACK> or <NAK>. If the message is wrong, the host makes a new request.

- **Block Check Characters**
  The Block Check Character (BCC) is the binary sum of the lower 7 bits of the message characters. The BCC character is sent with even parity, as other message characters.

BasTerminal Protocol

The JagBASIC commands and special keys used with the BasTerminal are listed below.

- **TPRINT command**
  You can output messages to the BasTerminal from a BASIC application using the TPRINT command. It has the same syntax as the PRINT and LPRINT commands.

  For example, this is a simple program for entering data and echoing it to BasTerminal using the inkey$ function and tprint.

```
10  tprint "enter line"                    100  tprint "input line= ";x$
20  x$=""                                  110  goto 10
30  c$=inkey$
40  if c$="" then goto 30
50  if c$=chr$(08) then goto 90
60  tprint c$;
70  x$=x$+c$
80  goto 30
90  tprint ""
```

- **Configuring LPRINT**
  The Configure Serial menus also allow you to setup the LPRINT device for JagBASIC. The LPRINT device is the first demand print port for Scale A. When you assign the LPRINT device and the BasTerminal connection to the same serial port, then that serial port operates as an interactive serial port for JagBASIC.

- **Special Keys**
  BasTerminal translates the following standard serial input keys to these JAGXTREME internal key values.

Serial input character		Translated JAGXTREME character	
backspace	0x08	delete	0x7f
tab	0x09	select	0x05
escape	0x1b	escape	0x02
enter	0x0d	enter	0x08

You can use these following keys on a standard serial keyboard to simulate the function keys on the JAGXTREME terminal's keypad.

Ctrl+a	function
Ctrl+b	escape
Ctrl+c	memory
Ctrl+d	tare
Ctrl+e	select
Ctrl+f	clear
Ctrl+g	zero
Ctrl+h	enter

- **Sending and Receiving Files**
  Two JagBASIC commands allow you to exchange JagBASIC files between a JAGXTREME and a PC running a terminal emulator. The JagBASIC command "rz" initiates receiving files at the JAGXTREME terminal from a PC using the ZMODEM protocol over the BasTerminal serial communication line. The JagBASIC command "sz" initiates sending files from the JAGXTREME terminal to a PC. If you want to use the rz and sz commands from the BasTerminal, you need to set up the serial communications to use the "8 bits, No Parity" data format.

ASCII Characters

The charts on the following pages list the ASCII Standard and Control characters and ASCII Special characters that are used in the JAGXTREME terminal's templates.

The first chart below gives replacement characters for display (and printing) purposes depending on the character set selected in the Application Environment program block (see Chapter 3) and the printer setup selection.

The second chart, ASCII Standard and Control Characters, gives the ASCII character, decimal (Dec.), and hexadecimal (Hex.) value for each ASCII character from 00 to 127 hex.

The third chart, ASCII Characters in Special Character Set, gives the ASCII character, name, and hexadecimal (Hex.) value for the characters that can be used as "special characters" in template programming. These include all of the characters not already available on the standard JAGXTREME terminal's keypad.

ASCII Character (Hexadecimal)												
Country	23h	24h	40h	5Bh	5Ch	5Dh	5Eh	60h	7Bh	7Ch	7Dh	7Eh
USA	#	$	@	[	\	]	^	`	{	|	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
England	£	$	@	[	\	]	^	`	{	|	}	~
Denmark-1	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain-1	₧	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	|	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark-2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain-2	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
Latin Am.	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú

ASCII Standard and Control Characters												
Char.	Dec.	Hex.	Char.	Dec.	Hex.	Char.	Dec.	Hex.	Char.	Dec.	Hex.
NUL	0	00	SP	32	20	@	64	40	`	96	60
SOH	1	01	!	33	21	A	65	41	a	97	61
STX	2	02	”	34	22	B	66	42	b	98	62
ETX	3	03	#	35	23	C	67	43	c	99	63
EOT	4	04	$	36	24	D	68	44	d	100	64
ENQ	5	05	%	37	25	E	69	45	e	101	65
ACK	6	06	&	38	26	F	70	46	f	102	66
BEL	7	07	’	39	27	G	71	47	g	103	67
BS	8	08	(	40	28	H	72	48	h	104	68
HT	9	09	)	41	29	I	73	49	i	105	69
LF	10	0A	*	42	2A	J	74	4A	j	106	6A
VT	11	0B	+	43	2B	K	75	4B	k	107	6B
FF	12	0C	,	44	2C	L	76	4C	l	108	6C
CR	13	0D	-	45	2D	M	77	4D	m	109	6D
SO	14	0E	.	46	2E	N	78	4E	n	110	6E
SI	15	0F	/	47	2F	O	79	4F	o	111	6F
DLE	16	10	0	48	30	P	80	50	p	112	70
DC1	17	11	1	49	31	Q	81	51	q	113	71
DC2	18	12	2	50	32	R	82	52	r	114	72
DC3	19	13	3	51	33	S	83	53	s	115	73
DC4	20	14	4	52	34	T	84	54	t	116	74
NAK	21	15	5	53	35	U	85	55	u	117	75
SYN	22	16	6	54	36	V	86	56	v	118	76
ETB	23	17	7	55	37	W	87	57	w	119	77
CAN	24	18	8	56	38	X	88	58	x	120	78
EM	25	19	9	57	39	Y	89	59	y	121	79
SUB	26	1A	:	58	3A	Z	90	5A	z	122	7A
ESC	27	1B	;	59	3B	[	91	5B	{	123	7B
FS	28	1C	<	60	3C	\	92	5C	|	124	7C
GS	29	1D	=	61	3D	]	93	5D	}	125	7D
RS	30	1E	>	62	3E	^	94	5E	~	126	7E
US	31	1F	?	63	3F	_	95	5F		127	7F

ASCII Standard and Control Characters												
Char.	Dec.	Hex.	Char.	Dec.	Hex.	Char.	Dec.	Hex.	Char.	Dec.	Hex.
Ç	128	80	á	160	A0	lb	192	C0	°	248	F8
ü	129	81	í	161	A1		193	C1	¨	249	F9
é	130	82	ó	162	A2		194	C2		250	FA
ã	131	83	ú	163	A3		195	C3	§	251	FB
ä	132	84	ñ	164	A4	oz	196	C4		252	FC
à	133	85	Ñ	165	A5		197	C5		253	FD
å	134	86		166	A6		198	C6		254	FE
ç	135	87		167	A7		199	C7		255	FF
	136	88	¿	168	A8		224	E0			
ë	137	89		169	A9	ß	225	E1			
è	138	8A		170	AA		226	E2			
ï	139	8B		171	AB		227	E3			
î	140	8C		172	AC		228	E4			
ì	141	8D	¡	173	AD		229	E5			
Ä	142	8E	«	174	AE		230	E6			
Å	143	8F	»	175	AF		231	E7			
É	144	90		176	B0		232	E8			
æ	145	91		177	B1		233	E9			
Æ	146	92		178	B2		234	EA			
ô	147	93		179	B3		235	EB			
ö	148	94		180	B4		236	EC			
ò	149	95		181	B5		237	ED			
û	150	96		182	B6		238	EE			
ù	151	97		183	B7		239	EF			
_	152	98		184	B8		240	F0			
ö	153	99		185	B9	•	241	F1			
Ü	154	9A		186	BA		242	F2			
	155	9B		187	BB		243	F3			
	156	9C		188	BC	Ø	244	F4			
	157	9D		189	BD	ø	245	F5			
Pt	158	9E		190	BE	•	246	F6			
f	159	9F		191	BF		247	F7			

ASCII Characters in Special Character Set								
Char.	Name	Hex.	Char.	Name	Hex.	Char.	Name	Hex.
NUL	Null	00	SP	Space	20	`	Left Single Quote	60
SOH	Start of Header	01	!	Exclamation	21	a		61
STX	Start of Text	02	”	Quote	22	b		62
ETX	End of Text	03	#	Number Sign	23	c		63
EOT	End of Trans.	04	$	Dollar	24	d		64
ENQ	Enquire	05	%	Percent	25	e		65
ACK	Acknowledge	06	&	Ampersand	26	f		66
BEL	Bell	07	’	Apostrophe	27	g		67
BS	Backspace	08	(	Left Parenthesis	28	h		68
HT	Horizontal Tab	09	)	Right Parenthesis	29	i		69
LF	Line Feed	0A	*	Asterisk	2A	j		6A
VT	Vertical Tab	0B	+	Plus	2B	k		6B
FF	Form Feed	0C	,	Comma	2C	l		6C
CR	Carriage Return	0D	-	Hyphen	2D	m		6D
SO	Shift Out	0E	.	Period	2E	n		6E
SI	Shift In	0F	/	Forward Slash	2F	o		6F
DLE	Data Link Escape	10	:	Colon	3A	p		70
DC1	Device Control 1	11	;	Semicolon	3B	q		71
DC2	Device Control 2	12	<	Less Than	3C	r		72
DC3	Device Control 3	13	=	Equal	3D	s		73
DC4	Device Control 4	14	>	Greater Than	3E	t		74
NAK	Negative Ack.	15	?	Question	3F	u		75
SYN	Synchronous Idle	16	@	At	40	v		76
ETB	End Trans. Block	17	[	Left Bracket	5B	w		77
CAN	Cancel	18	\	Back Slash	5C	x		78
EM	End of Medium	19	]	Right Bracket	5D	y		79
SUB	Substitute	1A	^	Caret	5E	z		7A
ESC	Escape	1B	_	Underline	5F	{	Left Brace	7B
FS	Field Separator	1C				|	Pipe	7C
GS	Group Separator	1D				}	Right Brace	7D
RS	Record Separator	1E				~	Tilde	7E
US	Unit Separator	1F				DEL	Delete	7F

Appendix 2: Discrete I/O Reference

The JAGXTREME terminal has a discrete I/O port with four input terminals and four setpoint output terminals on the controller board. The default input assignments are:

- IN1—Clear
- IN2—Tare
- IN3—Print
- IN4—Zero

These input assignments can be changed in the Configure Discrete program block in setup.

The default outputs represent Setpoints 1, 2, 3, and 4 respectively. Outputs are configured in the Configure Discrete program block in setup.

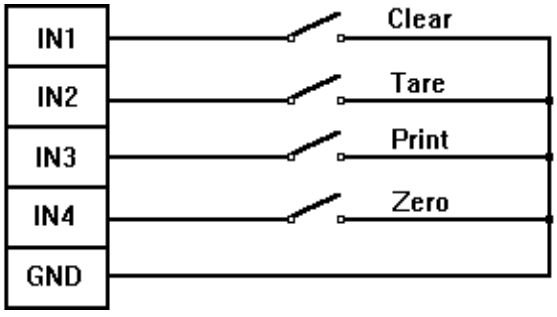
Inputs

The inputs are TTL compatible and are capable of handling from 5- to 30-volt DC signals. To initiate one of the inputs, you must ground the input terminal for the desired function and hold the input at logic ground level for at least 100 ms. The inputs are leading edge triggered. The maximum recommended “ON” time for an input is 1 second.

It is not necessary to supply any voltage to the inputs when not triggering (grounding). Internally, a 5-volt power supply with a pull-up resistor keeps the inputs in the “OFF” condition.

Because the signals are low level, the maximum recommended distance between the JAGXTREME terminal and the device triggering the input (a switch or relay contact) is 10 feet or less.

The JAGXTREME terminal has an internal diagnostic test to verify that each input is functional. See the section entitled Diagnostics and Maintenance program block in Chapter 3 of this manual for more information. The following diagram shows a typical wiring scheme.



Outputs

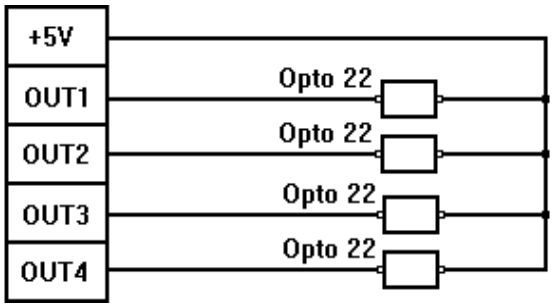
The outputs are TTL compatible, current-sinking components, which can handle from 5- to 30-volt DC signals at a maximum of 35 mA current. A solid-state relay or Opto 22 is typically connected to buffer the JAGXTREME outputs to a 120 or 220-volt AC signal.

An output terminal supplies a 5 volt DC signal for reference to the setpoint outputs. Because the supply is rated at 115 mA of DC current, make sure that the current draw from the devices used (relays or optos) do not exceed this limit. If the calculated current draw exceeds 115 mA, an external power supply is required. External power supplies are available from your authorized METTLER TOLEDO representative.

The outputs are negative true and "ON" when the displayed weight is below the setpoint coincidence value. The setpoints operate on the absolute value of the setpoint value so they can be used for weigh-in and weigh-out processes. There are no interlocks or relay logic included with the standard JAGXTREME terminal. If start-stop logic is required, METTLER TOLEDO recommends that you purchase this hardware (and design) through your local authorized METTLER TOLEDO representative.

The JAGXTREME terminal has an internal diagnostic test to verify that each output is functional. See the section entitled Diagnostics and Maintenance program block in Chapter 3.

The following diagram shows a typical wiring scheme.



Appendix 3: Network Reference

The JAGXTREME terminal provides an Ethernet local area network connection. This connection allows JAGXTREME terminals to be combined to share display/keyboards and serial ports, and to exchange data with personal computers and file servers.

Keyboard/Display Sharing

Cluster IP Example Setup Chart

Description	Term #1	Term #2	Term #3	Term #4	Term #5	Term #6	Network Hub
Standard Ethernet RJ-45							
IP Address	200.200.200.201	200.200.200.202	200.200.200.203	200.200.200.204	200.200.200.205	200.200.200.206	N/A
Sub-Net Mask	255.255.255.000	255.255.255.000	255.255.255.000	255.255.255.000	255.255.255.000	255.255.255.000	N/A
Gateway	000.000.000.000	000.000.000.000	000.000.000.000	000.000.000.000	000.000.000.000	000.000.000.000	N/A
Net Console	Y	Y	Y	Y	Y	Y	N/A
Web Server	Y	Y	Y	Y	Y	Y	N/A
PC Data Access	Y	Y	Y	Y	Y	Y	N/A

You can press **ESCAPE** at the JAGXTREME 2 terminal to unlock the keyboard when another JAGXTREME controls the terminal.

Any JAGXTREME terminal that has a keyboard/display may be used to interact with any other JAGXTREME terminal in its cluster. A JAGXTREME terminal with the keyboard/display must be configured as a network console, and it must be set up to have access to the other JAGXTREME terminals. If Terminal 1 is to be used as a network console and can access Terminals 2, 3, and 6, Terminal 1 will be set up as follows:

Terminal 1 Network Set Up	
Net Console	YES
Terminal #2	YES
Terminal #3	YES
Terminal #4	NO
Terminal #5	NO
Terminal #6	YES

Terminal 1 does not appear in this list since a JAGXTREME always has access to its own internal scale(s).

The other terminals (2, 3, 6) that Terminal 1 can access must have Terminal 1 marked as YES in their Terminal lists. In other words, each pair of terminals that need to interact with each other across Ethernet must have the other's terminal number marked YES in its Configure Network program block. This rule also applies to two terminals that must exchange print data. Using the previous example:

Terminal 2 Network Set Up	
Net Console	NO
Terminal #1	YES

Terminal #3	NO
Terminal #4	NO
Terminal #5	NO
Terminal #6	YES

Notice that Terminal 2 is configured to allow access from Terminals 1 and 6. Terminal 1 is used as the keyboard/display for Terminal 2 which has its printer output redirected to Terminal 6.

Terminal 2 is a Blind Terminal so its Net Console parameter is set to NO. Blind Terminals power up with defaults allowing data access from all other terminals. These defaults permit other terminals access to the Blind Terminal for setup.

NOTE: It is important to set up a blind terminal so that all other terminals that do NOT need access to it are turned off in its Configure Network program block. Failure to do this will result in lower performance of the Blind Terminal and network.

Refer to Chapter 3 for details on how to set these parameters.

Selecting a Network Scale for Interaction

The **SELECT** key is used to connect to another JAGXTREME terminal from a keyboard/display. For example, if you wish to connect to Terminal 2 from Terminal 1:

1. Press **SELECT** until the name for Terminal 2's Scale A is displayed.
2. Press **ENTER** to select.

You are now connected to JAGXTREME 2 Scale A. The annunciators under the lower display point to **2** and to **A**, reminding you which scale is current. Interacting with this scale is now identical to interacting with an internal scale.

Redirecting Serial Output

Any serial port on any JAGXTREME terminal in a cluster, except those connected to a DigiTOL scale, can be used to output serial data from other JAGXTREME terminals in the same cluster. The same demand port can be used by multiple terminals.

In the previous illustration, Terminal 6 has a printer connected to COM1. The set up of COM1's communication port parameters, such as baud rate, are set up on Terminal 6. Let's assume that this printer will be shared by Terminal 1 as an audit trail printer. The preceding table entitled "Terminal 1 Network Set Up" shows that Terminal 6 has been marked YES. Terminal 6's Configure Network program block must also have Terminal 1 marked YES.

Example

To redirect the data output from Terminal 1 to Terminal 6 you must also make a connection for this output. This is done on Terminal 1 in the Configure Serial program block as follows:

1. Access setup mode as discussed in Chapter 3.
2. Press SELECT until Configure Serial is displayed, then press **ENTER** to access this program block.
3. Press ENTER to access the Configure Port sub-block.
4. Press ENTER at the **Select Port?** prompt to select the desired port.
5. Press SELECT to display **Location? Remote** and press **ENTER**.
6. Press SELECT to display **Node? Terminal 6** and press **ENTER**.

7. Press ENTER to acknowledge **Assign Port?** COM1.
8. Open the **Add Connection?** sub-block and select the desired scale (A or B), demand print template, and demand print options.

With this configuration you can now print from Terminal 1 to the printer connected to Terminal 6 COM1 by selecting the appropriate scale connected to Terminal 6, (A or B) and pressing ENTER.

The Auto Print or discrete print input features can also be used to initiate the print output. For more details on setup of the serial port, refer to Chapter 3.

A-B RIO / PROFIBUS / MODBUS+ Option Sharing

The JAGXTREME terminal's remote scale sharing feature makes it possible for up to four networked scales to share one A-B RIO, PROFIBUS, or MODBUS+ interface. The first scale must be in the same terminal as the option module; the second, third, and fourth scale can be either local or remote.

Please refer to the JAGUAR/JAGXTREME PLC manual for additional information.

Appendix 4: Loading JAGXTREME Software

The JAGXTREME terminal is designed for easy software installation and upgrade. Using METTLER TOLEDO's "Flashpro" installation program from a personal computer (PC), you can load the latest version of JAGXTREME software and burn it into the terminal's flash memory. Upgrade software is available from METTLER TOLEDO as model 0901-0391 (14602B 00A).

STOP!

If the JAGXTREME terminal you are upgrading has one or more analog load cell scales attached, you must first verify that the program on the Analog PCB(s) has been upgraded to "A" revision or higher. Refer to the instructions supplied with the model 0901-0392 (146070 00A) "A" revision analog software kit for complete instructions.

The JAGXTREME terminal must be reprogrammed and calibrated after you load new software.

Flash the Software

Do not perform the file download from within the Windows environment. Exit Windows and perform the following steps from the DOS prompt.

Note: You may download the latest JAGXTREME operating software from the METTLER TOLEDO Field Service FTP site on the Internet.

For the JAGXTREME terminal, you will need two diskettes to contain the entire O/S in compressed format.

The first step is to extract the new files from the floppy disk onto the PC:

1. Create a directory and go to the directory on the PC where the new files will be stored. Use the DOS MD command or Windows Explorer if you need to create a new directory to hold the JAGXTREME terminal's files.
2. Insert the diskette with the new software files into the floppy disk drive A or B. The files on this diskette are compressed into a single file named JAGXTREME.EXE. Copy this file into the directory that you created in step 1.
3. At the DOS prompt, type JAGXTREME then press ENTER. Or, double click on the file name in Windows. The compressed files will automatically extract themselves from

JAGXTREME.EXE into the designated directory on the computer. The extracted files require approximately 5 MB of storage space on the PC's hard drive.

4. Edit the FP.BAT file using the DOS text editor or another and verify the new software name and serial port are correct. The FP.BAT file resembles the example below. Edit only the -t and -com elements.

Example:

flashpro -tSYS9_16.HEX -b115.2 -com1 -pe -d7 -s1

where:
-t is followed by the file name to be saved such as SYS9_16.HEX.

-b is the baud rate (in kbaud). The software is transferred at 115.2 kbaud. DO NOT CHANGE THIS PARAMETER.

-com is the serial com port on the PC that will be used to transfer the new software to the JAGXTREME terminal.

-p is the parity. The parity is set to even. DO NOT CHANGE THIS PARAMETER.

-d is the number of data bits used. Data bits are set to seven. DO NOT CHANGE THIS PARAMETER.

If a DigiTOL base is installed, be sure to disconnect all wires prior to connecting the RS-232 cable.

-s is the number of stop bits used. Stop bits are set to one. DO NOT CHANGE THIS PARAMETER.

You are now ready to use the flashpro batch file (FP.BAT) to load the software into the JAGXTREME terminal's flash memory.

To load JAGXTREME software:

1. Disconnect power to the JAGXTREME terminal.
2. Connect a bi-directional RS-232 cable from a PC to the JAGXTREME terminal's COM2 serial port. Wire the cable as follows:

JAGXTREME COM2	9-pin COM	25-pin COM
TxD B	2	3
RxD B	3	2
Gnd	5	7
Jumpers	4 to 6, 7 to 8	4 to 5, 6 to 20

3. With the cursor in the directory containing the new JAGXTREME files, type FP at the DOS prompt, but DO NOT press **ENTER** to execute the command.
4. Using a small, non-conducting object such as a bare Q-Tip, press and hold the pushbutton switch behind the CAL opening on the back of the Controller PCB.
5. With the CAL switch still depressed, apply power to the JAGXTREME then press ENTER or RETURN on your computer immediately to execute the flashpro installation program.
6. Release the CAL switch when a framed box scrolling a string of A's appears on the computer monitor indicating the installation has begun.

The box will continue to scroll A's until the installation procedure is complete. This process will continue with brief pauses occasionally for about 10 to 15 minutes. If the box with A's does not appear, press ESCAPE on the computer and remove power from the JAGXTREME terminal. Repeat steps 4 through 7.

If the new software was downloaded successfully, the DOS prompt will be restored on the computer and the JAGXTREME terminal will perform a power-up sequence.

During the power-up sequence, the storage locations for setup parameters and memory fields are checked. If any have been moved or added in the new version of software, you must respond Yes to the following prompts:

BRAM Bad - Rst? Y or BRAM Err - Rst? Y

EError - Reset? Y or EE A Err - Rst? Y

7. Press ENTER to reset the JAGXTREME terminal's program block parameters to factory defaults. If you select N(o), you will encounter scale errors.

   If **BRAM Err - Rst?** Y is displayed, you must reconfigure the JAGXTREME terminal.

   If **EError - Reset** is displayed, you must recalibrate the scale.

   If **EE A Err - Rst? Y** is displayed, you must recalibrate the scale.

8. Disconnect power, then reconnect power to the JAGXTREME terminal. When the JAGXTREME terminal lights all display segments in the power-up sequence, press and hold the CAL pushbutton (as described in step 5) until the terminal displays the **Master Reset!!!** prompt. This returns all program block parameters to factory defaults.

Appendix 5: JAGXTREME Default Values

The following lists the factory default values for each program block. Use the As Configured column to record your actual setup configuration.

Scale Interface program block			
Default	As Configured	Default	As Configured
Market - USA		Linearity Correction – No	
Scale Type		Calibration - No defaults	
# Internal Scales - 1			
Type - Analog		Zero Adjustment - No defaults	
Location - Analog Bd 1			
Calibration Unit - Pounds		Zero Adjustments - No defaults	
Capacity - 2.0 lb		Span Adjustment - No defaults	
Increment Size		Gravity Adjust – 1.0	
Number of Intervals - 1			
Low - 0.001			

Application Environment program block			
Default	As Configured	Default	As Configured
Character Set – USA		Zero Operation	
		Power-up Zero	
Language – English		Positive Range - 0%	
		Negative Range - 0%	
Keyboard Type – English		Pushbutton Zero	
		Positive Range - 2%	
Scale ID – SCALExA		Negative Range - 2%	
		Blank Zero - 5 divisions	
Time and Date Format		Auto Zero Maintenance	
Time Separator - :		Range - 1.00 divisions	
Time Format - 24:MM:SS		AZM w/ Net Mode - N	
Date Separator – space		Center of Zero - Gross Only	
Date Format - DD MMM YYYY		Stability Detection	
Alternate Weight Units		Stability Range - 1.0 divisions	
Main Units – pounds		Stability Readings - 0.3 sec	
Unit Switching – Yes		Beeper Operation	
Second Units – kilograms		Key Beeper - N	
Enable Aux. Units – No		Alarm Beeper - Y	
Power-up Operations		Process Application	
Timer – 0		Process - High	
Tare Operation		Vibration Rejection	
Enable Tare – Y		Adjust Lowpass	
Tare Interlock – N		Frequency - 2.0	
Enable Pushbutton Tare - Y		Poles - 8	
Enable Keyboard Tare - Y		Adjust Notch	
Enable Auto Tare – N		Frequency - 30.0	
Auto Clear Tare – N		Stable Filter - N	
Display Tare – Y			
Net Sign Correction - N			
Jag IDNET Tare - N			

Configure Serial program block			
Default	As Configured	Default	As Configured
Configure Port		Flexible Print	
Select Port Location - Local		Template 1 - N	
Assign Port - COM1		Template 2 - N	
Port Parameters		Template 3 - N	
Baud Rate - 9600		Template 4 - N	
Data Bits - 7		Template 5- N	
Parity - Even		Minimum Print - N	
Flow - XON/XOFF		Print Interlock - N	
COM1 Add Connection		COM2 Connection	
Type - Serial Out		No connections	
Mode - Demand			

Configure Template program block	
Default	As Configured
Defaults given in Appendix 1	

Configure Discrete program block			
Default	As Configured	Default	As Configured
Assign Setpoints			
Setpoint 1 - None		Setpoint 5 - None	
Setpoint 2 - None		Setpoint 6 - None	
Setpoint 3 - None		Setpoint 7 - None	
Setpoint 4 - None		Setpoint 8 - None	

Configuration of Discrete Inputs and Outputs			
Discrete Inputs	As Configured	Discrete Outputs	As Configured
Controller Card		Controller Card	
PAR 1.1 Clear		PAR 2.1 Setpt 1	
PAR 1.2 Tare		PAR 2.2 Setpt 2	
PAR 1.3 Print		PAR 2.3 Setpt 3	
PAR 1.4 Zero		PAR 2.4 Setpt 4	
Multifunction Card		Multifunction Card	
PAR 3.1		PAR 4.1	
PAR 3.2		PAR 4.2	
PAR 3.3		PAR 4.3	
PAR 3.4		PAR 4.4	
PAR 3.5		PAR 4.5	
PAR 3.6		PAR 4.6	
PAR 3.7		PAR 4.7	
PAR 3.8		PAR 4.8	

Configure Memory program block			
Default	As Configured	Default	As Configured
Configure Literals		Configure CN	
All literals blank (literals 11-20 are preset literals)		Port Location - Local	
Configure Prompts		Assign Port - COM1	
All prompts blank		Start - 0	

Literals and Prompts as Programmed			
Literals		Prompts	
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	
11		11	
12		12	
13		13	
14		14	
15		15	
16		16	
17		17	
18		18	
19		19	
20		20	

Configure JagBASIC (If Installed)			
Default	**As Configured**	**Default**	**As Configured**
Keyboard – None		**Send RAM Files**	
		Files to PC - N	
Display – None		**Files From PC - N**	
		Initialize RAM Disk	
Auto Start – N		**Delete RAM Disk Files - N**	
		Password Maintenance	
Manual Start – N		**Password - N/A**	

Configure Network program block			
Default	**As Configured**	**Default**	**As Configured**
Ethernet IP Address -- 111.111.111.111		WebServer Home Page -- home.htm	
Ethernet Subnet Mask -- 255.255.255.000		WebServer Document Page -- document.htm	
Ether. Gateway IP Address -- 0.0.0.0		WebServer Help Page -- help.htm	
PPP IP Address -- 0.0.0.0		FTP User Name 1 -- SUPERVISOR	
PPP Subnet Mask – 255.255.255.000		FTP User Password 1 -- ----	
PPP Gateway IP Address -- 0.0.0.0		FTP User Password 5 -- ----	
PPP Timeout – 600 seconds		FTP User Name 6 -- ----	
Local PPP User Name -- ----		FTP User Password 6 -- ----	
Local PPP User Password -- ----		Node Number -- 1	
Remote PPP User Name -- ----		Cluster IP Address 1 – 111.111.111.111	
Remote PPP User Password -- ----		Cluster IP Address 2 – 111.111.111.112	
PPP Dial Phone Number -- ----		Cluster IP Address 3 – 111.111.111.113	
PPP Modem AT InitString -- AT&U0&N10		Cluster IP Address 4 – 111.111.111.114	
SMTP Server IP Address -- 0.0.0.0		Cluster IP Address 5 – 111.111.111.115	
Email Machine Name -- Jaguar		Cluster IP Address 6 – 111.111.111.116	
Sender Email Address -- jaguar@xx.com		Host IP Address – 0.0.0.0	
Email Subject -- Automated Email Alert		Enable DHCP Client -- 0	
SMTP Server TCP Port -- 25			

* Defaults for Blind Terminals are Y(es)

Diagnostics and Maintenance program block			
Default	**As Configured**	**Default**	**As Configured**

Allen-Bradley RIO program block			
Default	As Configured	Default	As Configured
Scale Setup		Node Communications	
Data Format - Weight		Rack Address - 01	
Number of Scales - 1		Starting Quarter - 1	
Block Transfer - N		Last Rack – Y	
Setpoints - Eight		Data Rate - 57.6k	

PROFIBUS program block			
Default	As Configured	Default	As Configured
Scale Setup		Node Communications	
Data Format - Weight		Rack Address - 01	
Number of Scales - 1			

Configure Analog Output program block			
Default	As Configured	Default	As Configured
Output Channel A		Output Channel B	
Source - Gross		Source - Gross	
Zero Preset - 0.0		Zero Preset - 0.0	
Span Preset - Capacity		Span Preset - Capacity	
Zero Trim - No Defaults		Zero Trim - No Defaults	
Span Trim - No Defaults		Span Trim - No Defaults	

MODBUS Plus			
Default	As Configured	Default	As Configured
Scale Setup		Node Communications	
Data Format - Weight		Rack Address - jumpered on board	
Number of Scales - 1			
Globals - N			

Appendix 6: Gravity Factors

The values for gravity adjustment [Geo Val?XX] are a series of numbers in the range 0 to 31, as shown in the Table.

Geo Value Table	Height above sea level in meters										
	0	325	650	975	1300	1625	1950	2275	2600	2925	3250
North or south latitude	Height above sea level in feet										
in degrees and minutes	0	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660
0^0 0' - 5^0 46'	5	4	4	3	3	2	2	1	1	0	0
5^0 46' - 9^0 52'	5	5	4	4	3	3	2	2	1	1	0
9^0 52' - 12^0 44'	6	5	5	4	4	3	3	2	2	1	1
12^0 44' - 15^0 6'	6	6	5	5	4	4	3	3	2	2	1
15^0 6' - 17^0 10'	7	6	6	5	5	4	4	3	3	2	2
17^0 10' - 19^0 2'	7	7	6	6	5	5	4	4	3	3	2
19^0 2' - 20^0 45'	8	7	7	6	6	5	5	4	4	3	3
20^0 45' - 22^0 22'	8	8	7	7	6	6	5	5	4	4	3
22^0 22' - 23^0 54'	9	8	8	7	7	6	6	5	5	4	4
23^0 54' - 25^0 21'	9	9	8	8	7	7	6	6	5	5	4
25^0 21' - 26^0 45'	10	9	9	8	8	7	7	6	6	5	5
26^0 45' - 28^0 6'	10	10	9	9	8	8	7	7	6	6	5
28^0 6' - 29^0 25'	11	10	10	9	9	8	8	7	7	6	6
29^0 25' - 30^0 41'	11	11	10	10	9	9	8	8	7	7	6
30^0 41' - 31^0 56'	12	11	11	10	10	9	9	8	8	7	7
31^0 56' - 33^0 9'	12	12	11	11	10	10	9	9	8	8	7
33^0 9' - 34^0 21'	13	12	12	11	11	10	10	9	9	8	8
34^0 21' - 35^0 31'	13	13	12	12	11	11	10	10	9	9	8
35^0 31' - 36^0 41'	14	13	13	12	12	11	11	10	10	9	9
36^0 41' - 37^0 50'	14	14	13	13	12	12	11	11	10	10	9
37^0 50' - 38^0 58'	15	14	14	13	13	12	12	11	11	10	10
38^0 58' - 40^0 5'	15	15	14	14	13	13	12	12	11	11	10
40^0 5' - 41^0 12'	16	15	15	14	14	13	13	12	12	11	11
41^0 12' - 42^0 19'	16	16	15	15	14	14	13	13	12	12	11
42^0 19' - 43^0 26'	17	16	16	15	15	14	14	13	13	12	12
43^0 26' - 44^0 32'	17	17	16	16	15	15	14	14	13	13	12
44^0 32' - 45^0 38'	18	17	17	16	16	15	15	14	14	13	13
45^0 38' - 46^0 45'	18	18	17	17	16	16	15	15	14	14	13
46^0 45' - 47^0 51'	19	18	18	17	17	16	16	15	15	14	14
47^0 51' - 48^0 58'	19	19	18	18	17	17	16	16	15	15	14
48^0 58' - 50^0 6'	20	19	19	18	18	17	17	16	16	15	15
50^0 6' - 51^0 13'	20	20	19	19	18	18	17	17	16	16	15
51^0 13' - 52^0 22'	21	20	20	19	19	18	18	17	17	16	16
52^0 22' - 53^0 31'	21	21	20	20	19	19	18	18	17	17	16
53^0 31' - 54^0 41'	22	21	21	20	20	19	19	18	18	17	17
54^0 41' - 55^0 52'	22	22	21	21	20	20	19	19	18	18	17
55^0 52' - 57^0 4'	23	22	22	21	21	20	20	19	19	18	18
57^0 4' - 58^0 17'	23	23	22	22	21	21	20	20	19	19	18
58^0 17' - 59^0 32'	24	23	23	22	22	21	21	20	20	19	19
59^0 32' - 60^0 49'	24	24	23	23	22	22	21	21	20	20	19
60^0 49' - 62^0 9'	25	24	24	23	23	22	22	21	21	20	20
62^0 9' - 63^0 30'	25	25	24	24	23	23	22	22	21	21	20
63^0 30' - 64^0 55'	26	25	25	24	24	23	23	22	22	21	21
64^0 55' - 66^0 24'	26	26	25	25	24	24	23	23	22	22	21
66^0 24' - 67^0 57'	27	26	26	25	25	24	24	23	23	22	22
67^0 57' - 69^0 35'	27	27	26	26	25	25	24	24	23	23	22
69^0 35' - 71^0 21'	28	27	27	26	26	25	25	24	24	23	23
71^0 21' - 73^0 16'	28	28	27	27	26	26	25	25	24	24	23
73^0 16' - 75^0 24'	29	28	28	27	27	26	26	25	25	24	24
75^0 24' - 77^0 52'	29	29	28	28	27	27	26	26	25	25	24
77^0 52' - 80^0 56'	30	29	29	28	28	27	27	26	26	25	25
80^0 56' - 85^0 45'	30	30	29	29	28	28	27	27	26	26	25
85^0 45' - 90^0 0'	31	30	30	29	29	28	28	27	27	26	26

Appendix 7: Multiple Range and Multi-Interval Operation

Multiple Range Operation

With multiple range weighing, there can be up to three weighing ranges and each has a threshold. Each weighing range extends from zero to its range threshold. Each range has an associated increment size. The increment size and threshold value are larger for each successive weighing range from the lowest to highest ranges. The difference between the largest and smallest increment size is at most one decimal place. You manually set the increment sizes and thresholds in setup.

The JAGXTREME terminal only supports automatic selection of the "current weighing range". When weight is increasing, the current weighing range proceeds from the lower range to the next higher range once the weight exceeds the range threshold. Switchover to the next higher range occurs at the range threshold. When weight is decreasing, the current weighing range returns from the current weighing range to the lowest range only when the weight falls within half-a-division of zero.

The JAGXTREME terminal has a permanent display that clearly indicates the current weighing range. The JAGXTREME terminal indicates weighing ranges 1, 2, and 3 respectively. As of this printing, a new JAGXTREME terminal display overlay identifies these cursors as weighing range indicators. The JAGXTREME terminal maintains the same decimal point position in the Displayed Weight even when the current weighing range changes. There is at most one trailing, non-significant "0". When right of the decimal point, the non-significant "0" must be in the third place to the right of the decimal point. Manually set this in setup. A Tare may be taken in any weighing range. The Displayed Weight and Printed Weight are always the same.

In Gross Mode

The JAGXTREME terminal determines the current weighing range by comparing the Fine Gross Weight to the range thresholds. If scale is within half-a-division of zero, the terminal returns to the lowest weighing range as the current weighing range.

The JAGXTREME terminal calculates the Displayed Gross Weight by rounding the Fine Gross Weight to the nearest weight increment for the current weighing range.

In Net Mode

- The JAGXTREME terminal determines the current weighing range by comparing the Fine Gross Weight to the range thresholds. If scale is within half-a-division of zero for gross mode: the JAGXTREME terminal returns to the lowest weighing range as the current weighing range.
- The JAGXTREME terminal calculates the Displayed Net Weight by rounding the Fine Net Weight to the nearest weight increment for the current weighing range.
- The JAGXTREME terminal calculates the Displayed Tare Weight by rounding the Fine Tare Weight to the nearest weight increment for the current weighing range.

Displayed Gross Weight = Displayed Tare Weight + Displayed Net Weight

When you select the “Div” or divisions weight option in the <Config Options><plc type><Scale Setup><Data Format?> menu selection, the JAGXTREME terminal only reports the number of divisions calculated from the increment size of the highest weighing range to the PLC since there is no interface to report the current weighing range. You can select the “Wgt”, “Flt” or “Ext” options to report weight to the PLC that reflects weight calculated in the actual weighing range.

Multi-Interval Operation

The JAGXTREME terminal uses multi-interval weighing rules only when the scale base is a Mettler high precision base. There can be up to three weighing intervals. Each weighing interval has a threshold. Each weighing interval extends from the threshold of the next lower interval to its threshold. Each interval has an associated increment size. The increment size and threshold value is larger for each successive weighing interval from the lowest to highest intervals. The METTLER TOLEDO high precision base sets the increment sizes and thresholds.

The JAGXTREME terminal only supports automatic selection of the “current weighing interval”. When weight is increasing, the current weighing interval proceeds from the lower interval to the next higher interval when the weight exceeds the interval threshold.

The JAGXTREME terminal uses setpoint cursors 6, 7, and 8 to clearly indicate weighing ranges 1, 2, and 3 respectively. As of this printing, there is a new JAGXTREME terminal display overlay to identify these cursors as weighing range indicators.

The JAGXTREME terminal enforces taking tare through the high precision base when the Legal for Trade jumper is ON. The Legal For Trade option takes precedence over <Application Envn><Tare Operation><Jag IDNET Tare> menu selection.

The <Application Envn><Zero Operation><Restart> setup menu selects the power up operation of the base. When Restart=N is selected, the JAGXTREME terminal/high precision base clears the current tare and enforces a re-zeroing of the base after a restart of the base. When Restart=Y, the JAGXTREME terminal/high precision base preserves the current zero and tare values after a restart of the base.

In Europe and Australia, Pushbutton and AutoTare may be taken in any interval. In legal for trade mode, Preset Tare entries must be within the lowest interval. The JAGXTREME terminal generates an error message when the entry is too large. If not in legal for trade mode, Preset Tare entries may be in any interval. In the U.S. legal-for-trade mode, all tare entries must be in the lowest weighing range. Displayed Weight and Printed Weight are always the same.

In Gross Mode

The JAGXTREME terminal determines the current weighing interval by comparing the Fine Gross Weight to the interval thresholds.

The JAGXTREME terminal calculates the Displayed Gross Weight by rounding the Fine Gross Weight to the nearest weight increment for the current weighing interval.

In Net Mode

The JAGXTREME terminal determines the “net weight current weighing interval” by comparing the Fine Net Weight to the interval thresholds. It calculates the Displayed Net Weight by rounding the Fine Net Weight to the nearest weight increment for the “net weight current weighing interval”.

The JAGXTREME terminal determines the “tare weight current weighing interval” by comparing the Fine Tare Weight to the interval thresholds. The JAGXTREME terminal calculates the Displayed Tare Weight by rounding the Fine Net Weight to the nearest weight increment for the “tare weight current weighing interval”.

Displayed Gross Weight = Displayed Tare Weight + Displayed Net Weight

When you select the “Div” or divisions weight option in the <Config Options><plc type><Scale Setup><Data Format?> menu selection, the JAGXTREME terminal only reports the number of divisions calculated from the increment size of the highest weighing interval to the PLC since there is no interface to report the current weighing interval. You can select the “Wgt”, “Flt” or “Ext” options to report weight to the PLC that reflects weight calculated in the actual weighing interval.

Appendix 8: Market Destination (Finish) Codes

Use the following table to determine the finish code for a particular market destination.

FINISH CODE	DESTINATION MARKET	PREFERRED LANGUAGE	ALTERNATE LANGUAGE	VOLTAGE & FREQUENCY	PWR CORD CONFIG	WEIGHT UNIT	RETAIL CURRENCY	CURRENCY ABBREV
000	UNITED STATES	ENGLISH	ENGLISH	120/60	A	LB	DOLLAR	$
001	UNITED STATES	ENGLISH	ENGLISH	220/60	K	LB	DOLLAR	$
002	DENMARK	DANISH	SWED/NORW	230/50	B	KG	DAN KRONE	Kr
003	UK	ENGLISH	ENGLISH	240/50	C	KG	POUND ST	£
004	ITALY	ITALIAN	ENGLISH	230/50	B	KG	LIRE (LIT)	L
005	SWITZERLAND	GERMAN	ENGLISH	230/50	B	KG	SWISS FRC	Fr
006	SWITZERLAND	ITALIAN	ENGLISH	230/50	B	KG	SWISS FRC	Fr
007	SWITZERLAND	FRENCH	ENGLISH	230/50	B	KG	SWISS FRC	Fr
008	AMER. SAMOA	ENGLISH	ENGLISH	120/60	A	LB	DOLLAR	$
009	ARGENTINA	SPANISH	ENGLISH	220/50	D	KG	PESO	$
010	AUSTRALIA	ENGLISH	ENGLISH	240/50	D	KG	AUS DOLLAR	$
011	AUSTRIA	GERMAN	—	230/50	B	KG	SCHILLING	S
012	BARBADOS	ENGLISH	ENGLISH	120/50	A	KG	B ' DOS $	$
013	BELGIUM	FLEMISH	DUTCH	230/50	B	KG	BEL.FRANC	Fr
014	BELGIUM	FRENCH	ENGLISH	230/50	B	KG	BEL. FRANC	fr
015	BERMUDA	ENGLISH	ENGLISH	115/60	A	LB	DOLLAR	$
016	BERMUDA	ENGLISH	ENGLISH	115/60	A	KG	DOLLAR	$
017	BRAZIL	PORTUG.	ENGLISH	120/60	A	KG	REAL $	R$
018	BRAZIL	PORTUG.	ENGLISH	220/60	A	KG	REAL $	R$
019	CANADA	ENGLISH	ENGLISH	120/60	A	LB	CAN DOLLAR	$
020	CANADA	FRENCH	ENGLISH	120/60	A	KG	CAN DOLLAR	$
021	CZECH REP.	CZECH	ENGLISH	230/50	B	KG	KORUNA	Kcs **
022	CHILE	SPANISH	ENGLISH	220/50	E	KG	CHILE PESO	$
023	CHINA	CHINESE	ENGLISH	220/50	F	KG	RENMIMBI	RMB
024	COLOMBIA	SPANISH	ENGLISH	120/60	A	KG	PESO	$
025	COSTA RICA	SPANISH	ENGLISH	120/60	A	KG	COLON	›
026	CURACAO	DUTCH	ENGLISH	120/50	A	KG	GUILDER	ANG
027	DOM. REPUBLIC	SPANISH	ENGLISH	120/60	A	LB	RD DOLLAR	RD$
028	DOM. REPUBLIC	SPANISH	ENGLISH	120/60	A	KG	RD DOLLAR	RD$
029	ECUADOR	SPANISH	ENGLISH	120/60	A	KG	SUCRE	SI.
030	EGYPT	ARABIC	ENGLISH	220/50	F	KG	POUNDS	£
031	EL SALVADOR	SPANISH	ENGLISH	120/60	A	LB	COLON	›
032	EL SALVADOR	SPANISH	ENGLISH	120/60	A	KG	COLON	›
033	FINLAND	FINNISH	ENGLISH	230/50	B	KG	MARRKA	MK
034	FRANCE	FRENCH	—	230/50	B	KG	FR. FRANC	F
035	GERMANY	GERMAN	—	230/50	B	KG	D. MARKS	DM
036	GREECE	GREEK	ENGLISH	230/50	B	KG	DRACHMA	Dr
037	GUATEMALA	SPANISH	ENGLISH	120/60	A	SPAN. LB	QUETZALES	Q

FINISH CODE	DESTINATION MARKET	PREFERRED LANGUAGE	ALTERNATE LANGUAGE	VOLTAGE & FREQUENCY	PWR CORD CONFIG	WEIGHT UNIT	RETAIL CURRENCY	CURRENCY ABBREV
038	GUATEMALA	SPANISH	ENGLISH	120/60	A	KG	QUETZALES	Q
039	HONDURAS	SPANISH	ENGLISH	120/60	A	LB	LEMPIRAS	L
040	HONDURAS	SPANISH	ENGLISH	120/60	A	KG	LEMPIRAS	L
041	HONG KONG	CHINESE	ENGLISH*	200/50	C	KG	HK DOLLAR	$
042	HUNGARY	ENGLISH	—	230/50	B	KG	FORINT	F
043	ICELAND	ENGLISH	ENGLISH	230/50	B	KG	KRONA	Kr.
044	INDIA	—	ENGLISH*	240/50	G	KG	RUPEE	Re
045	INDONESIA	—	ENGLISH*	220/50	F	KG	RUPIAH	Rp
046	IRELAND	ENGLISH	ENGLISH	230/50	C	KG	PUNT	£
047	ISRAEL	HEBREW	ENGLISH	230/50	H	KG	SHEKEL	NIS
048	JAMAICA	ENGLISH	ENGLISH	110/50	A	LB	JAM DOLLAR	$
049	JAMAICA	ENGLISH	ENGLISH	110/50	A	KG	JAM DOLLAR	$
050	JAPAN	JAPANESE	—	100/50,60	I	KG	YEN	¥
051	JORDAN	ARABIC	ENGLISH*	220/50	C	KG	JD	JD
052	LEBANON	ARABIC	ENGLISH*	110/50	F	KG	L POUND	L£
053	MALAYSIA	MALAY	ENGLISH*	240/50	C	KG	RINGGIT	M$
054	MEXICO	SPANISH	ENGLISH	120/60	A	KG	PESO	N$
055	MOROCCO	ARABIC	—	230/50	B	KG	DIRHAM	***
056	NETHERLANDS	DUTCH	GERMAN	230/50	B	KG	D. GUILDER	G
057	NEW ZEALAND	ENGLISH	ENGLISH	230/50	D	KG	NZ DOLLAR	$
058	NICARAGUA	SPANISH	ENGLISH	120/60	A	KG	NIO	C$
059	NORWAY	NORWEIG	SWED/DAN	230/50	B	KG	KRONE	Kr
060	PAKISTAN	PAKISTANI	ENGLISH*	240/50	G	KG	RUPEE	PRe
061	PANAMA	SPANISH	ENGLISH	120/60	A	KG	DOLLAR	$
062	PARAGUAY	SPANISH	PORTUGUESE	220/50	A	KG	GUARANI	G.
063	PERU	SPANISH	ENGLISH	220/60	A	KG	NUEVOS SOLES	S/.
064	PHILIPPINES	FILIPINO	ENGLISH*	115/60	A	KG	PESO	PP
065	POLAND	POLISH	GERMAN	230/50	B	KG	ZLOTY	Z
066	PORTUGAL	PORTUG.	SPANISH	230/50	B	KG	ESCUDO	$
067	PUERTO RICO	ENGLISH	SPANISH	120/60	A	LB	DOLLAR	$
068	PUERTO RICO	ENGLISH	SPANISH	120/60	A	KG	DOLLAR	$
069	RUSSIA (CIS)	RUSSIAN	ENGLISH	230/50	B	KG	RUBLE	R
070	SAUDI ARABIA	ARABIC	ENGLISH*	127/60	A	KG	SR	SR
071	SINGAPORE	CHINESE	ENGLISH*	230/50	F,C	KG	S DOLLAR	S$
072	SLOVAK REP.	GERMAN	ENGLISH	230/50	B	KG	KORUNA	Kcs **
073	SOUTH AFRICA	ENGLISH	ENGLISH	220/50	G	KG	RAND	R
074	SOUTH KOREA	KOREAN	ENGLISH	110/60	A	KG	WON	W****
075	SPAIN	SPANISH	ENGLISH	230/50	B	KG	PESETAS	Pta
076	SWEDEN	SWEDISH	NORW/DAN	230/50	B	KG	KRONER	Kr
077	TAIWAN	CHINESE	ENGLISH*	110/60	A	KG	NEW TAI DOLLAR	NT$
078	THAILAND	THAI	ENGLISH*	220/50	F	KG	BAHT	B
079	TRINIDAD	ENGLISH	ENGLISH	120/60	A	KG	$	$
080	TURKEY	ARABIC	—	230/50	B	KG	LIRA	£
081	TURKEY	TURKISH	—	230/50	B	KG	LIRA	£

FINISH CODE	DESTINATION MARKET	PREFERRED LANGUAGE	ALTERNATE LANGUAGE	VOLTAGE & FREQUENCY	PWR CORD CONFIG	WEIGHT UNIT	RETAIL CURRENCY	CURRENCY ABBREV
082	URUGUAY	SPANISH	ENGLISH	220/50	D	KG	PESO	$
083	VENEZUELA	SPANISH	ENGLISH	120/60	A	KG	BOLIVARES	Bs.
084	VIRGIN ISLANDS	ENGLISH	ENGLISH	120/60	A	LB	DOLLAR	$
085	VIRGIN ISLANDS	ENGLISH	ENGLISH	120/60	A	KG	DOLLAR	$
086	UK	ENGLISH	ENGLISH	120/50	C	KG	POUND ST	£
090	ROMANIA	ROMANIAN	ENGLISH	220/50	B	KG	LEU	ROL
091	BOLIVIA	SPANISH	ENGLISH	220/50	A	KG	BOLIVIANO	BOB
092	LATVIA	ENGLISH	ENGLISH	230/50	B	KG	LATAS	Lv
093	LITHUANIA	ENGLISH	ENGLISH	230/50	B	KG	LITAS	Lt
094	CROATIA	ENGLISH	ENGLISH	230/50	B	KG	KUNA	kn
999	W/O FINISH	NONE	NONE	NONE	NONE	NONE	NONE	NONE

TABLE NOTES

* - ENGLISH OKAY FOR TECHNICAL DOCUMENTATION

** - Kcs HAS A SMALL "v" ABOVE THE LETTER "c".

*** - CURRENCY ABBREVIATION IS NOT KNOWN - NO RETAIL MARKET.

**** - THE LETTER "W" FOR WON HAS A DOUBLE LINE (=) THROUGH THE MIDDLE.

PREFERRED LANGUAGE - Language that is normally accepted in that region.

ALTERNATE LANGUAGE - Language (Eng, Span, Fren, Germ) that is also acceptable.

PWR CORD CONFIG - The "one" configuration most accepted in that region.

RETAIL CURRENCY - The full official name of the currency used.

CURRENCY ABBREV - The currency abbreviation that should appear on keys and displays.

METTLER TOLEDO

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